REFORM IN WATER SUPPLY AND SANITATION UTILITIES IN SYRIA

LESSONS LEARNT FROM THE MODEL OF THE HOLDING COMPANY FOR WATER AND WASTEWATER IN EGYPT

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This Thesis was submitted in Partial Fulfillment of the Requirements for the Master's Degree of Science in Integrated Water Resources Management

Faculty of Graduate Studies

The University of Jordan

Institute for Technology and Resources Management in the Tropics and Subtropics (ITT)

University of Applied Sciences-Cologne

January, 2011

Acknowledgements

I am pleased to acknowledge the efforts of the individuals and groups who made this work achievable:

The very capable professors: Prof. Dr. Mannar Fayyad (JU) and Prof. Dr. Hartmut Gaese (CUAS) with whom I have had both the pleasure and privilege of working.

No effort of this scope can be carried out without a significant assistance of GTZ Chief Technical Advisor Dr. Hans-Werner Theisen.

I am particularly grateful to my superiors in the ministry of housing and construction who never hesitate to support and facilitate my work in this research: The deputy minister Dr Kamal Alshekha and the head of planning department Mr. Mazen Laham.

I also would like to thank a great number of colleagues in the Holding Company for Water and Wastewater in Egypt who did not hesitate to provide important information and furnish notes and documents. These contributors as well as staff in Syrian water sector who cooperates and exchanges information.

Many people quoted in the text gave background information or reviewed early drafts of the text; in particular, thanks must be given to Mr. Holger Vagt, Mr. Rafiq Diab.

The financial support of DAAD is highly acknowledged

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Currency equivalents

(24 November 2010)

€ 1= 1.33097 US$	US$ 1 =0.751334 €
€ 1= 61.7357 SYP	SP 1 =0.016196 €
€ 1= 7.65785 EGP	EGP 1 =0.130587 €

List of abbreviations

CEE	Central and Eastern Europe
EEAA	Egyptian Environmental Affairs Agency
EGP	Egyptian Pound
EIU	Economist Intelligence Unit
EWRA	Egyptian Water Regulatory Agency
FYP	Five Year Plan
HCWW	Holding Company for Water and Wastewater
IRU	Institutional Reform Unit
IWRM	Integrated Water Resources Management
MAAR	The Ministry of Agriculture and Agrarian Reform
MALR	Ministry of Agriculture and Land Reclamation
MENA	Middle East and North Africa
MHC	Ministry of Housing and Construction
MHP	Ministry of Health and Population
MHUUC	Ministry of Housing, Utilities and Urban Communities
MLA	Ministry of local Administration
MOF	Ministry of Finance
MOI	Ministry of Irrigation
MOLD	Ministry of Local Development
MOSEA	Ministry of State for Environmental Affairs

MOT	Ministry of Transportation
MWRI	Ministry of Water Resources and Irrigation
NOPWASD	National Organization for Potable Water &Sanitary Drainage
NRW	Non Revenue Water
PPIAF	Public-Private Infrastructure Advisory Facility
SPC	Stat Planning Commission
SYP	Syrian Pound
UN HRC	United Nations Human Right Council
UNDP	United Nations Development Program
USSR	Union of Soviet Socialist Republics
WB	World Bank
WHO	World Health Organization
WS&S	Water Supply and Sanitation
WSP	Water and Sanitation Program

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Abstract

This study is conducted to transfer knowledge and get lessons learnt from the reform experience in Egypt to Syrian water sector. It reviews the holding company for drinking water and wastewater (HCWW) in Egypt with brief description of its external environment. It discusses the possibility of application of the HCWW to water supply and sanitation utilities in Syria. Besides; the study discusses the compliance of the Egyptian case study with IWRM principles. The assessment focuses on five principles: autonomy, working environment, accountability for results, customer and market orientation.

Governance issues and the weakness of institutional set up of the water sector in both countries have resulted in financial, organizational and technical challenges with direct environmental, social and health impacts. With slight difference between the two countries; coordination problems were more severe in Egypt before the reform than in Syria.

The main findings are that the model of the HCWW in Egypt is not applicable for water utilities in Syria. Limiting conditions of the model are related to centralization. In addition the reform involves a high transaction costs (more than US $ 400 million and total amount of international fund in ongoing projects of more than US$ 500 million). In one hand these financial resources are unlikely to be available for Syrian water sector and on the other hand are not justified with significant impacts on assuring financial sustainability of the HCWW.

However there are some good practices in HCWW which could be adopted without establishment of a holding company. These practices are related to working culture change and market orientation practices.

1 Introduction

1.1 Background

Improving access to clean water and sanitation services is an essential goal of major international water related conferences and forums since 1972 till present (UNDP, 2009).

Yet 1.2 billion people worldwide do not have access to clean drinking water, and a further 2.6 billion lack adequate sanitation services. Furthermore, 2.8 billion people in 48 countries are expected to live in conditions of water stress or scarcity by 2025 (WHO, 2006).

In July 2010 United Nation represented by the human right council declares that access to clean drinking water and sanitation is a basic human right. The sixty fourth General Assembly expressed alarm that 1.5 million children under five years old died each year as a result of water- and sanitation-related diseases, acknowledging that safe, clean drinking water and sanitation were integral to the realization of all human rights (UN HRC, 2010).

Water crisis has to be viewed in a much broader sense than physical scarcity. Even though the water natural resources are scarce in many regions in the world, but water scarcity is manmade crisis. To a surprising extent, in most countries water scarcity – whether quantitative, qualitative, or both – is crises of governance and institutions and not relayed to resources or technology problems.

The last few decades have witnessed an increased emphasis on reforms in water supply and sanitation (WS&S) sector. Business-as-usual scenarios are no longer adequate in meeting the current challenges in many countries around the world (WB, 2006).

This new worldwide water sector reform trend has been caused by several factors, including, inter alia; first; increasing awareness regarding water availability and the environmental and health impact of inadequate sanitation services. Second; the competition between various users for scare water has increased as a result of growing population and increased economic activities. Third; the traditional perspective of water as a “free gift” is replaced with the perspective of water as an economic and social good according to Dublin international conference on water and the environment 1992. This means that water pricing, project selection, and other related policies have to be changed to reflect such a new perspective.

These new perspectives are the main causes to rethink about water supply and sanitation sector reform worldwide.

1.2 Problem statement

Since 2006, Syria is moving towards establishing a social market economy and started the process of liberalization of its centrally planned economy (SPC, 2006). Since the transition period of adopting the reforms in Syria is meant to pass from a centrally planned economy to an economic system based on market rules (EIU, 2009).

The 10th Five Year Plan (FYP) from 2006 and other central government policies have called for a transition to a more social-market based economy, and for a more decentralized approach to service provision. State owned companies face challenges in adapting to the market oriented system because the managerial structures of these companies lack incentives for improving the efficiency in both investment and operational and maintenance budgets allocation. As part of its reform efforts, the government has considered reducing

public funds and transforming state owned enterprises into autonomous companies with their own budgets. This long term policy is applied on most of services sectors including water sector. The FYP also set out a policy of financial autonomy and independent management for the Water establishments.

In the next FYP (2011-2015), Syria is expected to continue the gradual liberalization of its centrally planned economy, a process that has been led by the previous FYP. The eleventh FYP, which is going to be approved within the next few months, sets ambitious objectives and strategies in line with the objectives of the previous FYP with a serious attempt to avoid the gaps in the tenth FYP (Laham, 2010).

The economic issue for performance improvement of the Water Supply Establishments is to become more cost-effective with regard to the services they provide to citizens rather than to make profits. Therefore the dilemmas of the transition are not as profound for the WS&S sector as they may be for tradable industrial goods, or even basic food stuffs (Watt & Kayyal, 2008).

In addition, the water institutions are already facing structural fragmentations and lack of coordinating among several players. Hence, they have to adopt institutional reform that assures economic and organizational independency.

WS&S sector experiences financial deficit and performs unsatisfying services with direct environmental, social and health impact.

The problem here: low performance in the water supply and sanitation utilities in Syria due to the financial constrains, weak performance incentives and water shortage.

In addition to the challenges accompany the transition to social market economy, water utilities in Syria face financial constrains resulting from, low cost recovery, lack of funding and lack of state of the arte knowhow for new financial opportunities like private public partnership (PPP).

To overcome all the challenges the sector is facing, one crucial and urgent measurement is institutional reform.

1.2.1 Problem analyses

Water and sewerage services in Syria have reasonably good coverage; water supply coverage 99 percent in urban areas and 90 percent in rural areas with total coverage in national level 93 percent, but the supply is intermittent and in some regions shortcut occurs for more than nine days in some regions, non revenue water (NRW) rate is very high 33 percent and large disparities in consumption per capita per day between different regions in some rural areas it is below the target 80 L/Ca/day (MHC, 2008).

According to the World Bank (2006); the low services are consequence of low autonomy in the water establishment. Managers in the water establishments in Syria do not have adequate control over the funding decisions needed to reduce operational costs - and are not able to implement tariffs that would increase revenues (Watt & Kayyal, 2008).

The establishments find themselves locked in a vicious cycle. As illustrated by Figure 1, this cycle combines weak performance incentives, low willingness of customers to pay cost recovery tariffs, and insufficient funding for maintenance. Assets therefore are deteriorated and not used efficiently to provide the essential services and users are said to be reluctant to pay more unless service levels are improved.

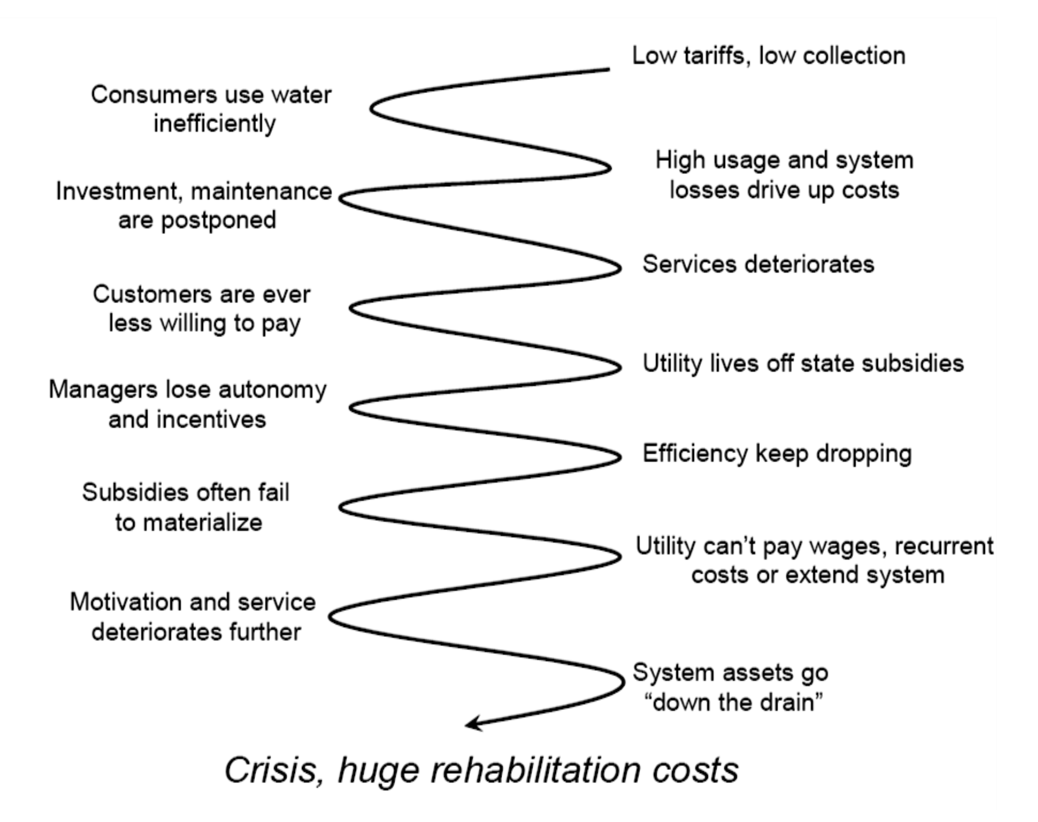


Figure 1.The Vicious Spiral of Performance Decline of Utilities

Source: (WSP & PPIAF, 2002)

The vicious spiral is a consequence of both ineffective and misdirected policies and the monopolistic nature of the sector. It's still very difficult for many decision makers to effectively balance the trade-offs between affordability and expansion of coverage to poorer communities with the utility's need for financial viability (Hughes, 2003).

A recent study on the financing mechanisms of the water sector illustrates the lack of management incentives that results from central planning - where the central planning and budgeting systems allocate all capital investments from the state-budget and provide subsidies to cover recurrent cost deficits (Mehta & Mehta, 2008).

An examination of the extant legislation indicates that the central planning budgetary and financing mechanisms do not promote results-based management approaches nor acknowledge better performance. The water establishments in Syria are set up as statutory authorities but in practice act as ministerial departments (Watt & Kayyal, 2008).

The central planning system in this way severely restricts the introduction of modern management methods, and does not reward managers who pursue improved service standards and service levels for the water users (Khahlous, 2010). Deficits and poor investment decisions accepted as normal by the system, and citizens have learned to expect low service levels and are therefore often reluctant to tariff increase.

A willingness to pay survey suggests that people would pay 250 SYP/month for a good water services which is more than double what they pay currently (GTZ, 2006). From central government's point of view, this should result in better services for which the users are more willing to pay, thereby reducing subsidies and transfer payments from the centre and reducing the centre's budget deficits (Watt & Kayyal, 2008).

1.2.2 Importance of the study:

1- The Syrian government, represented by the ministry of housing and construction, is reforming the water supply and sanitation utilities in the country; therefore it is highly interested to get a closer view upon the holding company model in the water supply and sanitation in Egypt and other models in the neighboring countries. Beside the assessment and research of some organizations in the Egyptian water sector, there is no single assessment for the whole institutional reform and establishment of the holding company in

Egypt. It would be helpful to use lessons learnt from the Egyptian case for the Syrian water sector institutional reform process.

2- Country-specific studies dealing with either water institutions or water sector performance separately isolation is common, whereas studies evaluating them with a cross-country perspective are rare (Saleth & Dinar, 2000).

This study aims to contribute to the general understanding and comprehensive of the institutional reform needed in the WS&S sector to overcome the sector's challenges in the transition phase in Syria.

Documentation and analytical evaluation of cross-country experience are valuable because it allows countries to learn from each other with minimal transaction costs and uncertainty (Saleth & Dinar, 2000).

1.3 Objectives of the study:

The objective of this thesis is to contribute to establish a common vision among the stakeholders in the Syrian water sector about the institutional structures that are responsive to the country's socio-economic conditions by answering the question whether the model of the water holding company be an adequate solution for overcoming the weakness in the water supply and sewage sector in Syria.

1.3.1 The following questions are answered

❖ **Syrian water sector**

1. What is the current situation in the water sector in Syria?

   a. How the sector is organized (the main players and how they communicate)?

b. What are the challenges in the water sector?

2. What are the Syrian decision maker's expectations of the water sector reform?

❖ **Assessment of the establishment of HCWW and external environment in Egypt**

- What were the driving forces for transition to holding companies
- How the transition process implemented and what were the main challenges?
- What are the HCWW achievements so far?

❖ **Discussion and recommendations:**

1. Is the business model of the holding company for water and wastewater in Cairo applicable for water supply and sanitation sector in Syria?
2. Does the structure of Holding companies comply with IWRM principles set in Dublin international conference on water and the environment 1992?

2 Literature review

2.1 Water institutional reforms: Water institutions: structure and environment

- Saleh & Dinar (2005); Water institutions can be defined as rules that together describe action situations, delineate action sets, provide incentives and determine outcomes both in individual and collective decisions related to water development, allocation, use and management. Like all institutions, water institutions are also subjective and influenced by the cultural, social, economic and political context. Institutional change can emerge both from the endogenous structure (organizational reform) as well as from the exogenous environment (political and legal reform). Figure.2 shows the internal linkages within the water institutions.

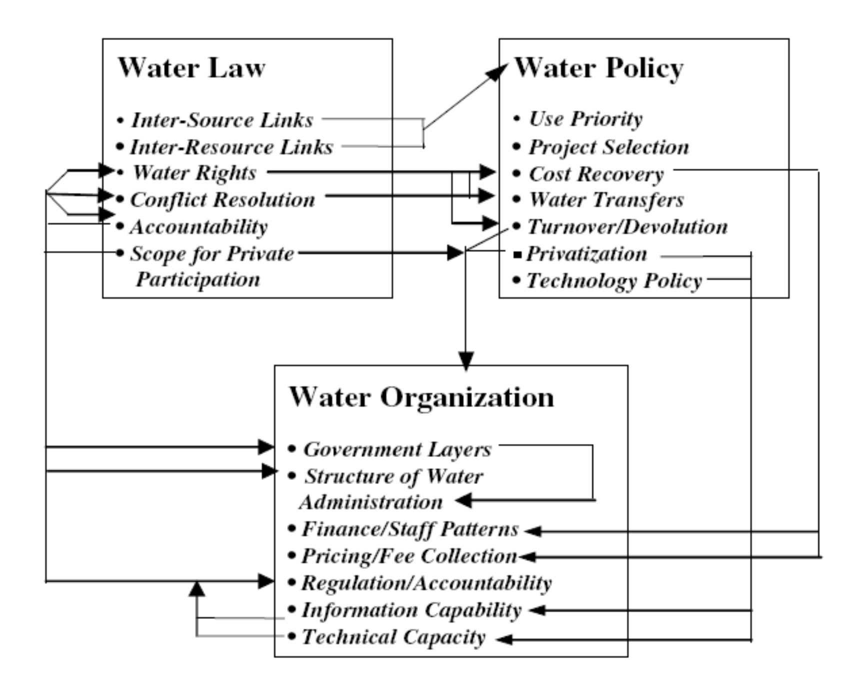


Figure 2 water institutional structure: a simplified representation.

Source: Saleth & Dinar water policy 7. (2005)

The overall performance of water institutions depends on the three components (water policies, laws and organizations) as well on the linkages between them. The arrows in Fig. 2 indicate an illustrative set of linkages that are possible both within and across the three institutional components. It is very important to assess and evaluate these linkages as well as the components when attempting to reform the water sector in a given country.

Fig. 3 illustrates the external factors (governance) that influence the performance of the water sector and the reform process.

Fig. 3, provide broader view in the external environment of the whole water sector. The two segment represented in the figure illustrate two levels of institutional interaction; the first segment captures the interaction between water institutions and sector performance and the other captures the general environment within which such interaction occurs which is called water governance.

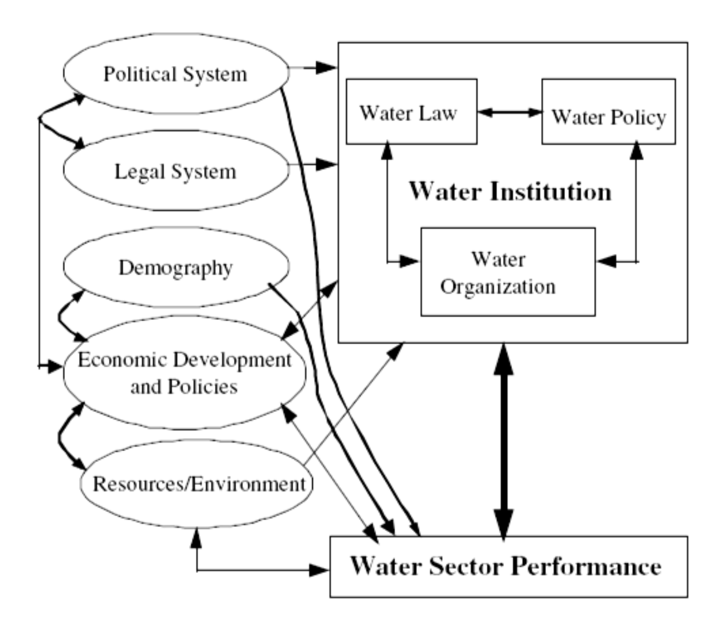


Figure 3: Water institutional environment: a partial representation.

Source: Saleth & Dinar (2004)

- World Bank (2006); examined eleven large water supply utilities worldwide and surveyed their institutional and management development approaches. The faults of public sector in water business include the reluctance of politicians to balance a trade-off between affordability and expansion to cover the needs of the urban poor, and the inability of the public sector policy makers to pursue multiple contradictory objectives. The research methodology used the „new public management‟ paradigm as a starting point. The following key factors for success were identified as:

- Ownership by managers resulting from management autonomy and the ability to retain trained staff

- The establishment of an active external accountability framework to hold managers to account for performance and the use of independent auditors

- Internal accountability for results from managers and staff

- A market-oriented structure encouraging outsourcing, market incentives, market forces

- Customer- oriented services are an objective

- A corporate culture shaped by the chief executive and top management

The study argues that a clear separation of responsibilities between government and the management of the utilities is likely to be a pre-condition for success in water sector reform programmes. The principles of the „new public management‟ approach are a common feature and a key assumption of each of the methodologies. The most useful strategy, as assumed from the WB study, is to pursue management autonomy but where managers are accountable to the users. Shedding power or granting autonomy from the central government to water utilities in local levels should be accompanied with financial

management accountability. Otherwise decisions in public utilities would be generally based on the interests of their political masters instead of serving customers effectively, especially the poor.

The reform in water sector should consider the external environment as well as the utilities and involve the decision makers that influence incentives both within and outside the enterprise.

2.2 Holding companies model in water sector

- Do state holding companies facilitate private participation in the water sector (Kerf, 2000)

Establishing a stat holding company (SHC) to plan and finance investments in water sector might be justified, but only under a set of very specific circumstances:

- Insufficient water tariff and low cost recovery
- Investment responsibility cannot be transferred to the private operator

The term SHC can be used to refer to at least two rather distinct types of companies.

1. The first type of SHCs is multi- sectoral publicly owned companies which are set up to own and oversee several affiliated companies in one region.

2. The second type is publicly owned companies which are set up to oversee and manage several geographically distributed affiliated companies in on specific activity such as water services.

SHCs might be established for a variety of reasons;

1. To perform better than ministries department would do. This was, for example, the principal goal of the establishment of SHCs in Algeria in 1988.

2. To prepare the sector for privatization and to transfer water utilities ownership to the private sector. This was the case of the Treuhandanstalt in Germany which was set up in 1990 to transfer hundreds of ex East German public enterprises to the private sector.

It is important to emphasize, however, that the type of the proposed HC plays a big role on the performance of the sector and for each case cultural, economic, legal and institutional factors should be considered when deciding to set up a SHC.

In order to determine the potential usefulness of SHCs, the way in which the SHCs established influences their functions. Those functions relate to:

- Owning infrastructure assets
- Planning and financing asset replacements and network expansions
- Regulating the activities of the private operator; and
- Promoting the acceptance of PPP.

2.3 Previous studies in Syrian water sector

- Assistance in institutional development and organizational change for general establishment of drinking water and sanitation in rural province of Damascus (Watt & Kayyal, 2008)

The study proposes recommended strategies and actions for institutional and organizational changes in the establishment and discusses the Transition to a ‘Corporatized’ public water company form as a reform option.

The main criteria of the organizational and institutional changes is for good management as measured by the effectiveness of providing a service that serves all the citizens properly both rich and poor, is sustainable in terms of replacing worn out assets and providing extensions as necessary, meets government financial objectives, and ensures proper oversight over the water organization's management performance and staff behavior. The model of a „corporatized" public water company proposed by the authors has been widely adopted in many countries. The differences between Statutory Authorities and „Corporatized" Public Water Companies are, in practice, not absolute differences and are measured by: the degree of management autonomy; the degree of delegation of powers to the Board from government.

Government should make policy and enact legislation and regulations, and the management of the utilities should be allowed enough autonomy under the legislation to operate as efficiently as possible. The present legal environment leaves the Establishments with very limited options on how to proceed.

- Baseline Water Sector Report in Syria (GTZ, 2008)

The study comes in the wider framework of providing a key reference for water studies and research in Syria. It is a deep assessment of the organizational mechanisms and coordination among all water sector players in the country. It was initiated in order to open the door for more comprehensive and detailed studies.

The report is part of six volumes concerning: water quality, water quality, and water economy, information technology in the water sector and water institutions. It examines the economic and institutional context in which the Ministries operate through highlighting the new economic model adopted by the government and the reform plans at the highest level.

- The Organizational evaluation, new role, and recommendations for change (GTZ, 2007)

The study gives an overview of the water sector and the roles of its main players are presented, showing the nature of relationship between the Ministry and the other players. Then the reform initiatives in the Ministry are highlighted, showing that no major change has taken place since the merger of 2003 which created the current MHC.

The report emphasizes the need for a significant organizational change scheme and it divides the drivers for change into three different levels:

- The macro level
- The sector level
- The organizational level

The report assesses the procedures, systems, and instruments available at the Ministry of Housing and Construction. It highlights the general changes in the economic and administrative environment in which the Ministry operates, and consequently assesses and suggests organizational and managerial reform actions which improves service delivery and objectives accomplishment.

- Strategic Concept Paper for the Development of the Finance Management System in the Water Sector (GTZ, 2006)

Decrease transaction costs and overhead expenditures by decentralizing and improving efficiency in service delivery. The main sources of avoidable transaction costs are overstaffing, duplication of responsibilities in sectors, oversized designs of water-related facilities, suboptimal technology selection, and procurement inefficiencies.

The WS&S subsector, in moving toward corporatization, needs to urgently address the debt overhang caused by past policies of financing service expansion. But the WS&S subsector is doing so without ensuring adequate cost recovery from users.

2.4 Previous studies in Egyptian water sector

- World Bank, "Cost-effectiveness and equity in Egypt's water sector: Egypt public expenditure review", Policy Note 3 (May 2005),

The increase in public expenditure required for water sectors in Egypt both irrigation and WS&S sub sectors raised a concern in the government to look for alternatives for public finance. The cost recovery rate is below international comparators. Increasing the investment budgets has negative impacts on the availability of the current budget in one hand and on the other hand it's urgent to protect public health and prevent environmental degradation. Therefore the deficit in the current budgets is increasing dramatically.

Low income communities are the most effected by the low water service coverage and water quality.

It is strongly recommended to rearrange the practices of budget planning and management process for better allocation of budget appropriations through different budget chapters of water agencies.

There are different options to assure the fund needed to the sector in term of new investment and M&O costs. Whether to decrease costs or increase contribution from users or private sector or both. Pre conditions of both options need to be secured such as determining the main causes of high transaction costs (overstaffing, duplication of responsibilities in sectors, oversized designs of water-related facilities, suboptimal

technology selection, and procurement inefficiencies) or changing in legislations if the second option would be applied to facilitate the private sector participation in finance and increase willingness to pay.

- Private sector participation and regulatory reform in water supply. The southern Mediterranean experience. OECD Working Paper No. 265 (OECD, 2008)

The paper highlights that governments of Mediterranean countries are well aware of the urgency of reforming the water supply sector. Some countries have started to rearrange the organisation of the sector a long time ago; others are still at the beginning of the process. Experience with private sector participation in water services is relatively recent and has proven to be successful when institutional framework is appropriately designed. Finally, the study emphasises that institutional arrangements and pricing policy are the two factors that matter the most in improving water supply. The paper gives general overview of the water supply and sanitation structure in some case studies in the region (Algeria, Cyprus, Egypt, Jordan, Malta, Morocco, Palestinian Territories and Tunisia)

3 Study approach and methodology

3.1 Background: Experience sharing in institutional reform

The institutional reform encompasses huge investments and political risks and very often there is no grantee for the expected results. Those risks weaken the incentives and compulsions to induce the needed reform in a given country. According to a study of the World Bank the institutional change occurs only when the transaction costs of reform are less than the corresponding opportunity costs of doing nothing. This latter includes; economic, ecological and political costs (Saleth & Dinar, 2000).

Assessing the institutional feasibility of reform implementation is costly and time consuming process. Experience sharing can be powerful tools to minimize the costs and risks involved in experimenting with institutions. Learning from each other's experience is an important means in order to identify technically feasible and politically acceptable reform strategy format and design. In this context, cross-country flows of knowledge and experience in the realm of water sector reforms are valuable with considering the specific conditions, priorities and sequencing of institutional reform in each country.

The research approach is based on documentation and analytical evaluation of cross-country experience in the context of the water sector and its institutional arrangements. It attempts to review and document recent institutional changes in the Egyptian water sector in a descriptive context and evaluate the process of interaction between institutions and performance in the water sector from a cross-country perspective.

3.2 Study area

General water establishment for drinking water and wastewater in Damascus and the holding company for water and wastewater (HCWW) in Egypt located in Cairo.

The research gives a brief overview about the water sector in both countries to describe the external environment and economic and political framework of the focus areas of the research. The approach taken in this study is to assess HCWW itself and not the whole water sector. The general environment fostered by sector policies is central to the success of the HCWW, but the assessment of that sector is not the focus of this document.

The assessment is conducted according to key points considered internationally as criteria for best practices in water institutions to create local customized institutional reform:

1. Autonomy
2. Accountability
3. Costumer orientation
4. Market orientation
5. Working environment

3.3 Data collection techniques

3.3.1 Review of available documents and literature:

A literature review was continuous process along all the study phases as well as starting point of the entire project activities.

The literature review covered the following areas:

- Best practices and well performing water utilities

- Water Holding companies structures
- The key official documents of the reform (decrees, by-laws, laws)
- Previous related studies and researches in Syria
- Previous related studies and researches in Egypt.

3.3.2 First contact of the main stakeholders (mainly by Emails):

Pre-contacts were very important part of the process to determine the potential partners and interviewees.

During this phase official agreements for cooperation from the government sides in both countries were obtained.

In order to identify additional potential interviewees the contacted person was asked to refer others who might be involved or resource person.

3.3.3 Structured and semi structured interviews

In order to conduct interviews that adhere to the goals of the research, semi structured and structured interviews were used to ensure that each interviewee was asked questions that were specific to her/his background.

Once a potential interviewee was identified, they were contacted by telephone or E-mail to set up a formal appointment and to provide them with the questionnaires. Questionnaires directed to Egyptian and Syrian's interviewees are available in appendixes (A) and (B) respectively.

- **Interviews in Damascus**

Interviews in Damascus aimed to examine the ability and motivation for change among decision makers in the Syrian water sector and to get known about the expectations and priorities of the stakeholders from the institutional reform. In addition, attending an official meeting with the stakeholders in the water sector reform in Syria and headed by the deputy minister of housing and construction for technical affairs. The meeting was conducted in order to discuss the reform options.

- **Interviews in Cairo**

Aimed to gain an overview on the structure of the water sector in Egypt and an in-depth understanding of the business model of the holding company and what are its achievements. Interviews to Egyptian water experts were mainly on subjects relevant to autonomy, accountability, market orientation, customer's orientation and working environment practices.

3.4 Data and information analyzing and synthesizing

All data and information are analyzed and synthesized on the basis of international best practices according to the World Bank, WS& S working notes No 9, 2006, Characteristics of well performing water utilities, customized to fit the Syrian context and the expected role of the water utilities in the new social market economy model.

The analysis focuses on:

1. The institutional environment in which the utilities operate and assess the external autonomy and external accountability

2. The internal functioning of the utility, consisting of such factors as corporate culture, customer orientation, market orientation, internal accountability for results, and the ability to delegate within the organization.

4 Brief review of water supply and sanitation sector in Syria

4.1 Introduction

Even though Syria is a better off country in terms of water availability comparing to other countries in Middle East and North Africa (MENA) region (WB, 2007); the pressure on water resources in Syria is increasing with continued population growth, urban expansion and fast economic development. The deterioration of water resources will have serious long-term repercussions on the sustainability of these resources (SPC, 2006).

In term of Hydrology, Syria is divided into seven basins and the average supply of surface water is estimated to be around 10 billion m^3, while figures show that the average supply of renewable groundwater is around 6 billion m^3 (SPC, 2006). However, over the last 15 years water use has steadily increased, reaching 19.2 billion m^3 in 2007. The average available water resources is around 15 billion m^3 (SPC, 2006). These figures imply that the speed of groundwater depletion exceeds natural renewability in most Syrian territories, the impact of which is evident in the drop of groundwater levels in many areas.

The drinking water sector share of the country's water resources is 8 percent mainly from groundwater, while the agricultural sector consumes 90 percent and the industrial sector has only 2 percent (SPC, 2006).

Even though the drinking water and waste water sector is small part of the IWRM, It is important due to its links to the health status and quality of life of citizens.   Approximately 50 percent of the planned investments budget for the entire Syrian water sector for the period of the 10th Five Year Plan (2006-2010) was spent on realizing drinking water and sewerage projects.

4.2 Legal and political environment

4.2.1 Water policies

Planning in water sector in Syria falls short to midterm and short term planning. There is no national water policy or long term strategy to direct the WS&S sector in Syria. FYP is the key official document for setting new policy directions. Based on it, annual plans are prepared by the line ministries, to be discussed with the Ministry of Finance (MOF) and approved by the Supreme Planning Council and Prime Ministry.

The 10th FYP (2006) has called for a transition to a more social-market based economy. It set out a policy of financial autonomy and independent management for the Water establishments, but the long-term objective, the priorities, the mechanisms and the instruments for this have not been clearly mentioned in the plan.

4.2.2 Water related laws, legislations

- **Water law**

In 2005 the new Syrian water law was launched; the Water Law 31 of 2005 is an important first step towards a comprehensive legal framework for the sector. It regulates water demand management approaches at the national level and use of water resources to avoid groundwater depletion. Another key element in this law is an institutional focus, mainly defining roles of several entities and considers all water resources as publicly owned.

Even the water law is an important step to draw the legal framework of the Syrian water sector; however it has two major weaknesses:

1. Water Law has been approved five years ago and it includes articles on water resource protection zoning, licensing of wells and drilling procedure and gives provisions for law enforcement and punishments in case of violations of the Water Law. However, its enforcement is still not sufficient.
2. Even the water law gives the priority to drinking water but it does not provide sufficient details on how conflicting uses will be dealt with.

- **Other water related legislations and laws**
  - **Organic Laws (which are ratified by parliament), include:**
    - Law 50 for the year 2002 The Environment Law
    - Law 2 for the year 2005 – Mandate for Public Establishments, Companies and Enterprises
    - Law 50 for the year 2004 – Modifications of the Basic Workers Law
    - Law 51 for the year 2004 - Procurement Law
    - Executive regulations 2008 for Environmental Impact Assessments.
  - **Presidential decrees include:**
    - Legislative decree 14 for the year 1984 – Mandate for the water and wastewater establishments
    - Legislative decree 54 for the year 2006 – the basic financial law
    - Legislative decree 489 for the year 2007 – the basic financial statute for public establishments, companies and enterprises of economic nature

- **Ministerial decisions include:**
  - Decree 528 for the year 2005 – Revised Unified investment and operational systems for Public Establishments of Water and Wastewater in the Governorates.
  - Internal Statute and bylaws (soon to be adopted by a ministerial decision)

4.3 Institutional framework

The overall institutional framework for water management in Syria is hierarchically organized. A number of ministries share the responsibility of water resources management; all of them are represented in the Higher Water Council.

The roles of various public bodies and institutions related to the water sector:

4.3.1 National level

❖ **Higher Water Council**

The Council was established in 2007. Its main responsibilities are to develop short-term water strategies, general water planning and policy formulation, manage shared water resources and trans-boundary issues and also coordinate between relevant ministries for assessing drinking water sources and utilization of treated wastewater (MOI, 2010).

❖ **The High Commission for Water**

This commission, established in 2005, is a national body responsible for preparing medium and long-term policies and strategies related to water issues. The commission is headed by the prime minister and has members from State Planning Commission (SPC), Ministry of Irrigation (MOI), Ministry of Housing and Construction (MHC), Ministry of Local

Administration (MLA), Ministry of Agriculture and Agrarian Reform (MAAR), etc. In reality, the commission is not very active (MOI, 2010).

❖ **State planning commission**

Within the SPC the department of integrated water resources management (DIWRM) was created in 2006 and is responsible for monitoring and providing strategic advice to improve coordination and overall water sector performance on a strategic level.

❖ **General Commission for Water Resources (GCWR)**

GCWR has been established in 2005 with delegated authority of MOI for the development, management, and investment for water resources.

4.3.2 Ministerial level

❖ **The Ministry of Irrigation**

It is the central institution for the management of water resources in Syria and it is responsible for the allocation of water resources to the domestic, industrial and agricultural sectors. Main tasks of MOI are monitoring, developing and protecting water resources and developing water resources related laws and legislation (GTZ, 2008).

❖ **The Ministry of Agriculture and Agrarian Reform**

MAAR is responsible for development and reform of all agricultural sectors, regulates and rationalizes the use of water resources for agricultural purposes as well as policy and legislative development, short, medium and long-term planning and execution of agricultural programs, and government owned land reform (GTZ, 2008).

❖ **The Ministry of Housing and Construction**

MHC, established in 2003, and its affiliated public institutions, is responsible for policy and legislation development, investment planning, and implementation of potable water supply and wastewater collection and treatment services. The ministry supervises thirteen General Establishments for Drinking Water and Wastewater, Wastewater treatment companies and a number of General Companies for wastewater.

MHC is assigned the tasks of supplying clean drinking water to the population, and treats sewage in order to protect the environment from its pollution. To serve these assignments, MHC is expected to play the role of the regulator, policy maker, and supervisor of its affiliated establishments which in turn play the active role of executor of WS&S sector strategies, programs, and projects.

❖ **Ministry of environment**

It is responsible for environmental policy making and protection by issuing standards and monitoring water quality for various uses. The General Commission for Environmental Affairs (GCEA) falls under the jurisdiction of MOE which acts both nationally and on the international level. The commission carries out environmental studies and research, awareness programs, monitors water quality, manages labs and develops environmental protection policies.

4.3.3 Local level

❖ **Water Basin Management Committees**

These committees are nominally established in 2005 under the Water Law and are responsible for implementing policies adopted by the High Commission for Water, aiming to achieve sustainable water management at basin level. In practice, the committees have not been active for most basins.

❖ **General Establishments for Drinking Water and Wastewater**

The establishments are responsible for coordinating and preparing plans concerning drinking water and sewage projects; designing and implementing drinking water and sewage projects; operating, managing, and maintaining drinking water and sewage facilities. Although the sewerage sector is officially the responsibility of the MHC, many sewer networks are still under the responsibility of the municipalities. Depending on the size of the governorate, the Establishment has organized a number of water economic units to perform tasks on the local level.

❖ **General wastewater companies**

In those governorates where wastewater treatment plants have been implemented, a separate wastewater company, responsible only for the operation and maintenance of the Wastewater treatment plants has been put in place. Recently a number of wastewater companies were established in all governorates, but in practice most of them are still not active because of missing the wastewater facilities they are supposed to operate. The Wastewater companies report to the line General Establishment for Drinking Water and Wastewater.

4.4 Water supply and sanitation sector's challenges in Syria

4.4.1 Organizational challenges

- **Lack of coordination**

In addition of the limitation in the fresh water availability and the challenges relating to IWRM implementation in the countries of the MENA region, a common vision is missing in the Syrian water sector which led to lack of communication and coordination between the different actors in the water sector. Water sector planning is conducted on ministerial level without proper coordination and integration with other water stakeholders.

- **Human resource management challenges**

Human resources related laws have contributed to create de- motivating working environment and resulted over staffed utilities and low labor productivity seven employees per 1000 connections (MHC, 2008).. Law No. 50 for 2004 - Modifications of the Basic Workers Law provides a mechanism to assess the competence of employees once every two years in accordance with regulations detailed in a decree issued for that purpose. In practice all employees are given the same raise 9 percent regardless their performance. Financial incentives and rewards are paid based on a ministerial decision subject to the availability of funds. Termination of employment is based on the recommendations of a special committee composed of the Minister of Justice and Social Affairs and Labor, and the head of the Central Bureau for Financial Monitoring, to be approved by a prime ministerial decision. Temporary employees can be hired if an appropriate line budget has sufficient funds. Contracting experts and external consultants is also possible if funds have

been allocated for that purpose. Permanent positions within the cadastre cannot be contracted, and temporary employment cannot be converted to permanent positions. This law severely restricts the possibilities of modern management and human resource development procedures within the utilities.

4.4.2 Financial challenges

- **Cost recovery and tariff**

Tariffs for domestic water are very low in Syria compared to other countries in the MENA region like Jordan and Tunisia. Sewage service tariff is estimated as a percent value of the total drinking water bill (GWI, 2009). Available household expenditure data (2004) indicates that, in the Damascus Rif, monthly expenditures for water, telephone and electricity are 0.62 percent, 2.34 percent and 1.51 percent respectively. Average monthly water bills amounted to 120 SYP/household (less than € 2) (GTZ, 2006).

The decree 528 for the year 2005 is a big step has been done in terms of legal framework for financial sustainability. It gives the Board of Directors of each Establishment the authority to determine tariffs in their respective Governorates. However, this decree is still not practiced.

More efforts in terms of capacity building, culture change must be accompanied to put it in act. On the other hand; it may be commented that the easiest way to increase revenues is to increase tariffs without improve service levels and standards. To avoid an unjustified increase enforcing the regulatory functions is essential (Khahlous, 2010).

- **Inefficient financing mechanism**

A recent study on the financing mechanisms of the water sector (GTZ, 2006) illustrates the lack of management incentives that results from central planning. The mechanism of budgeting system is as follow:

- The central treasure allocates all capital investments from the state-budget (the Public Debt Fund) in the form of loans to the establishments and operational and maintenance budgets and provides subsidies to cover recurrent cost deficits
- The Establishments:
  - Develop preliminary annual budgets that include expenses and revenues resulting from their activities including expenses of human resources, energy needs, and administrative and legal costs, and connection costs and revenues from imposed fees in addition to values of consumed water and interests on funds deposited in banks and all profits and interests from investments. These budgets are based on previous expenses and revenues and not on zero-based budgeting principles.
  - Pay for their operations out of user charges but deficits are covered from the central budget.
  - Transfer the funds in their depreciation accounts back to the central budget.

These systems do not encourage nor do they allow the managers of the establishments the flexibility to make effective decisions regarding how to enhance revenues and minimize costs in order to achieve financial stability and positive cash balance. Establishments have limited incentive to adjust investment programmes according to sector problems as they

arise and managers are rewarded with their compliance with meeting the targeted investment plans without any feasibility studies behind (Watt & Kayyal, 2008).

4.4.3 Technical challenges

The 10th FYP mentioned the main technical challenges facing the sector:

- Old age of equipment and machinery used in the drinking water sector and missing policy of preventive maintenance. Assets are allowed to run down to be replaced during the next investment plan.
- Delays in the implementation of sanitary sewage projects (study, contracting procedures and implementation). This has a negative impact in terms of economic feasibility upon utilization. It weakness the target for which it was developed for.
- Excessive physical and administrative water losses; the average of NRW is 33 percent in the national level which reaches 40 percent in some regions in the country. The main causes are illegal connections and inadequate quality and quantity of meters in the water supply system. A study of Syrian water utilities indicated that domestic water meters were causing losses in revenues of more than 30 percent of total income (1 million Syrian pounds [US$20,000] per day). The meters, which had been supplied by a single, state-run, domestic manufacturer to 2.8 million customers registered in 13 water utilities, were unreliable, inaccurate, and often broken. As a result of this economic assessment, the Syrian government gave the go-ahead to halting the state monopoly on the supply of domestic water meters, and to allow the importation of water meters (Kayyal & Shalak, 2006).

4.5 The expected achievements from the reform

The Syrian government represented by the MHC is willing to reform WS&S utilities. The objective is to enhance the performance to change to social market economy and achieve the goals set by the 10th five year plan in administrative and financial independency, self sufficient, enhances PPP, customer orientation, improving the efficiency of operation and increasing accountability (Dr.Alshekha, 2010).

All reform components need to be justified in the context of improved service delivery; adopting new management tools, changing work culture from task orientated to results orientated, loosen the centralized regulations and capacity building. The main two directions in the reform are to avoid one centralized body (local decision making) and each establishment develops its own pace (Green, 2010).

Green (2010), the goals of the reform can be achieved in different visions: individual state corporations (but with reduced central rules), government owned companies under commercial laws, management contracts or Advisory contracts.

4.5.1 Particular interest in the HCWW model in Egypt

Representatives from the ministry as well from water establishment in Damascus have visited Egypt and have overview on the reform taken place in WS&S sector. A deep analysis for the Egyptian model is required in order to assess its applicability for water sector in Syria (Dr.Alshekha, 2010).

In July 2009 a Syrian delegation from water establishment in Damascus has visited the Holding company to be introduced to the new Egyptian model in water supply and sanitation management.

As a result of the good first impression of this visit the general director of the establishment visited the company in April 2010. Later on, an expert from the holding company was invited to Damascus to present the model in order to discuss it in border stakeholder involvement (Elzaher, 2010).

What are the challenges the decision makers looking to solve in adaptation new model in WS&S sector?

“There are goals to be achieved in all levels from the establishment of holding company in the water sector in Syria; (i) the central government represented by prime minister, SPC and the ministry of finance would benefit that no complaints anymore from citizens since the services quality of water supply would be very high. In addition lower subsidy to the water sector and less burden on the central treasure, good cost recovery rate and better revenues, (ii) The operator represented by the establishment and the employees would enjoy better working environment, higher salaries, and more incentives for better performance, (iii) The citizens would benefit from:

- Better services, quality and quantity in term of providing the service continuously
- Costumer orientation which means: Citizens are treated in better way like customers of private companies, the complaints are taken more seriously and the customers can express their expectations and wishes to improve the services
- Ensuring equity in billing and water distribution” (Elzaher, 2010).

5 Egyptian water sector

5.1 Introduction

Egypt has limited water resources to trans-boundary water; the Nile River comprises ninety- five percent of Egyptian water resources. It is the main conventional source of fresh water with 55, 5 billion m^3 are stored in the Lake Nasser to meet the Egyptian water requirement for all users. Other resources are characterized by deep ground water in the Delta, the Western Deserts and Sinai, rainfall and flash floods (MWRI, 2005).

The Nile is shared among nine other African countries with an estimated 460 million people depend on it. Development activities in the upstream countries would heavily affect the water availability for Egypt. Moreover, high reserve consumption, water stress, over withdrawal problems, high urban population growth and uncertain impact of climate change create more pressure on water management in Egypt (ICID, 2005).

Agriculture consumes more than 85 percent of Egypt's share of Nile water annually while municipal and industrial requirements represent a smaller portion of Egypt's total water requirements (WB, 2007).

The last few years witnessed significant reform efforts in the water sector in Egypt aiming to apply an integrated water resources management approach, the water supply and sanitation sector has considerable attention of this reform (MWRI, 2005).

Even the drinking water and wastewater sector has the least share of the total water balance in Egypt, but it has the largest share in terms of investments. The total investments needed for the national water resources plan (NWRP) amount to EGP145 billion (about € 19

billion) for the period 2003–17 (MWRI, 2005). The major shares in this investment are taken up by the WS&S sector (62 percent), MWRI (32 percent) and other related ministries (1 percent). The private sector share is 5 percent of these investments. The total recurrent costs in the same period 2003–07 are EGP 41 billion (€ 5.36 billion). These costs include the O&M costs of the system but exclude the personnel costs. The drinking water and sanitation sector's percentage of the O&M is 70 percent. The agricultural sector will cover 12 percent while the private sector will cover 15 percent. Health and Environment will cover 3 percent (AbdelGawad, 2008).

5.2 Background of the external environment

5.2.1 The Structure of the Public Sector in Egypt

The public sector in Egypt comprises four major bodies: the central government, local governments, public authorities and public sector companies.

The public service authorities, as distinct from the public economic authorities, do not constitute separate entities and they carry out essentially governmental functions such as higher education, public health, agricultural research and planning. The local governments are organized on a regional basis into 25 governorates. Although the local government is administratively separated, it has very limited financial autonomy (WB, 2005).

The central government controls the budget of the local governments which is approved by the national legislature as a part of the state budget. The local government has jurisdiction over certain types of tax and non-tax revenues, but the bulk of its expenditures are financed through central government transfers. The public economic authorities fall under the

jurisdiction of the public law. The government gradually is transforming all governmental organizations and authorities to operate under the public business company's law.

The public sector companies consist of state enterprises which are engaged in a wide range of commercial activities and fall under the jurisdiction of the public business law. Together with public economic authorities, they constitute the basic vehicle for the implementation of government interventions in the economy (Abdelwahab, 2010).

5.2.2 The socio- economic situation in Egypt

World Bank (2007); Egyptians are classified into three categories in term of poverty;

1. extreme poverty without basic needs and food represents 10 percent of total poor people population,
2. absolute poverty with minimum basic needs and food represents 19.6 percent of the population and
3. Near poverty spending enough to meet the basic needs and food with slightly some of non essential needs represents 21 percent of the population (WB, 2007).

Wide disparities between poor and rich people in Egypt are worth to mention when talking about access to drinking water and adequate sanitation system. According to UNDP, Egypt Human development report 2008; 18 percent of the population live on less than 2 $ per day. About 15 million people live in informal settlements mainly in Upper Egypt where the higher rate of poverty is concentrated (UNFPA, 2007). Access to safe drinking water and adequate sanitation services is one of the most challenging for people living in informal settlements in Egypt (UN HRC, 2010).

According to World Bank report (2005), poverty and access to safe drinking water and sanitation have inverse relationship. Figure (4) shows that in Upper Egypt where the poverty has recorded the highest level; access to drinking water and sanitation services are the lowest in the country.

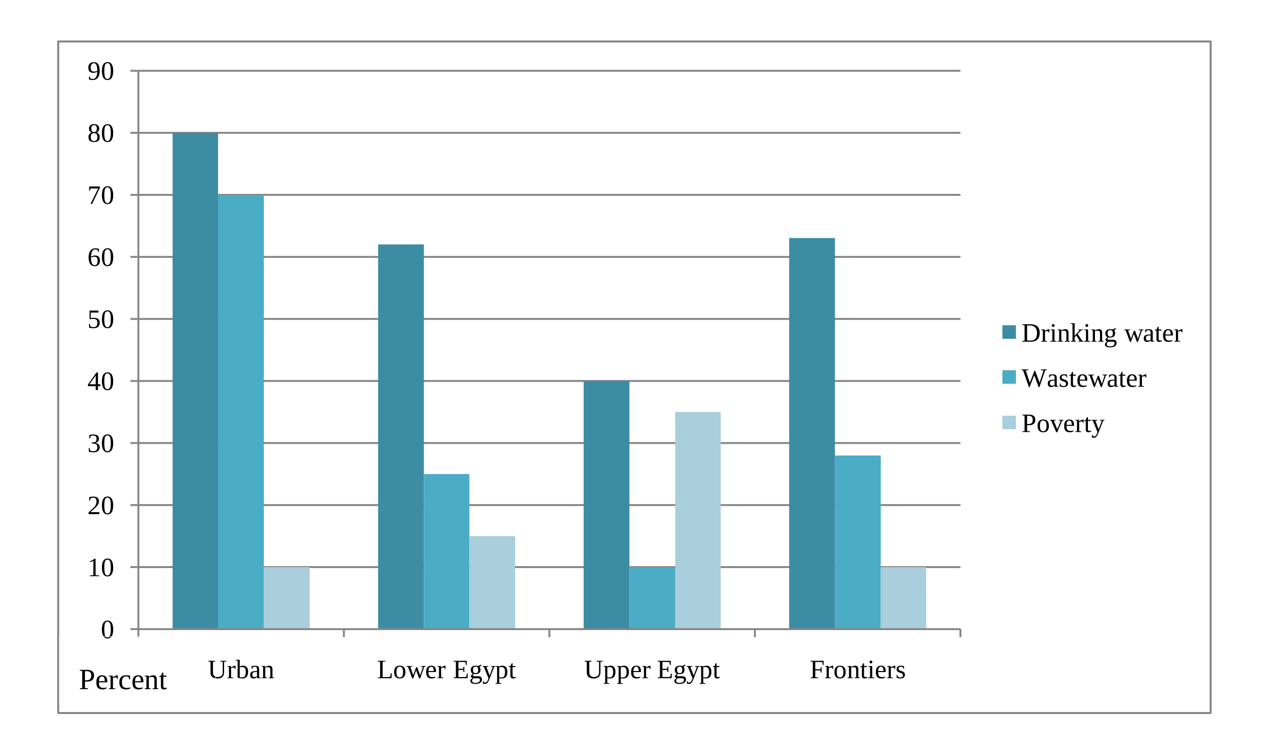


Figure 4: Poverty and access to drinking water and sanitation services in Egypt

Source: World Bank (2005)

5.3 Main players in the water sector and their responsibilities

There are more than ten governmental institutions related directly or indirectly to water sector management in Egypt. Table.1 represents the key ministries and their main rules:

Table 1: The main players in the Egyptian water sector and their roles

The institution	**Abbreviation**	**Their Roles**
Ministry of Water Resources and Irrigation	MWRI	Setting the overall policies, planning and management of water sector
Ministry of Agriculture and Land Reclamation	MALR	Agricultural sector
Ministry of Housing, Utilities and Urban Communities	MHUUC	Water supply and sanitation sector
Egyptian Environmental Affairs Agency	EEAA	Brackish water quality control
Ministry of Health and Population	MHP	Drinking water quality checking and standards' settings
Ministry of Industry	MOI	Industrial wastewater controlling
Ministry of Finance	MOF	Funding water projects
Ministry of Local Development	MOLD	Operational and maintenance of drinking water plants
Ministry of transportation	MOT	Navigation use of water

Source: the author

5.3.1 Responsibility for water supply and sanitation management

The key stakeholders who have a direct influence on water supply and sanitation sector are MWRI, MALA, MHUUC, MOSEA, MHP and MOI.

Ministries in Egypt have a more indirect role in the management of water resources that are listed in the following Section.

- **Ministry of water and Irrigation (MWRI):**

MWRI is the oldest water institution in Egypt. Since its establishment in 1864 it has significant changes in its organizational structure over the years. The ministry is responsible for authorizing and manages national water use and reaches best possible benefits of the available water resources in terms of the supply of good drinking water and support of the development in various economic sectors by wisely allocate available water among different users. Within its mandate, the MWRI has the responsibility to implement the national water quality and Nile River protection legislation and design, construction, operation and maintenance of all related infrastructure for the irrigation and drainage network. In 2005 MWRI started to introduce IWRM by strengthening decentralization and participation in the water sector and by establishing an institutional reform unit (IRU) in order to restructure the ministry’s functions at different levels (MWRI, 2005).

- **Ministry of local development:**

Until 2004 MLD had the responsibility for water supply and sanitation in local level through its water departments and authorities in different governorates. This rule has changed due to the new reform in water supply and sanitation and the establishment of the holding company (HCWW, 2010).

- **Ministry of Agriculture and Land reclamation (MALR)**

The MALR is not only the biggest water user with 85 percent of consumptive use of water; also it has close relation to WS&S through wastewater reuse in agriculture.

- **Ministry of State for Environmental Affairs (MOSEA) /Egyptian Environmental Affairs Agency (EEAA):**

MOSEA is responsible for wastewater quality control and prevent Nile water pollution from industrial effluents. It has the authority to enforce brackish water standards (MWRI, 2005).

- **Ministry of Health and Population (MHP)**

MHP is the key governmental body in charge of water quality management and standard setting for quality of portable water sources, drain waters, industrial and sewage treatment plants discharge, and wastes discharged from river vessels.

In cooperation with MWRI it operates 130 monitoring points to ensure water quality to meet the standards.

- **Ministry of Industry (MOI)**

MOI controls and manages the 330 state owned industries and supervises pollution control activities for these and industries within the private sector (Hvidt, 2004).

- **Ministry of Interior**

In coordination with the aforementioned line ministries, the Ministry of Interior is in charge of enforcing the water-related laws, and collection of fines including those relating to water extraction, pollution or other impacts (Hvidt, 2004).

❖ **The Ministry of Housing, Utilities and Urban communities (MHUUC)**

MHUUC is responsible for providing sufficient drinking water of good quality and adequate wastewater services which meet the Egyptian standards and respect public health and the environment to the population. The ministry has outsourced all its responsibilities and tasks; planning, construction and management of the municipal water supply infrastructure and wastewater collection and treatment facilities to its affiliated institutions and organizations, shown in figure 4:

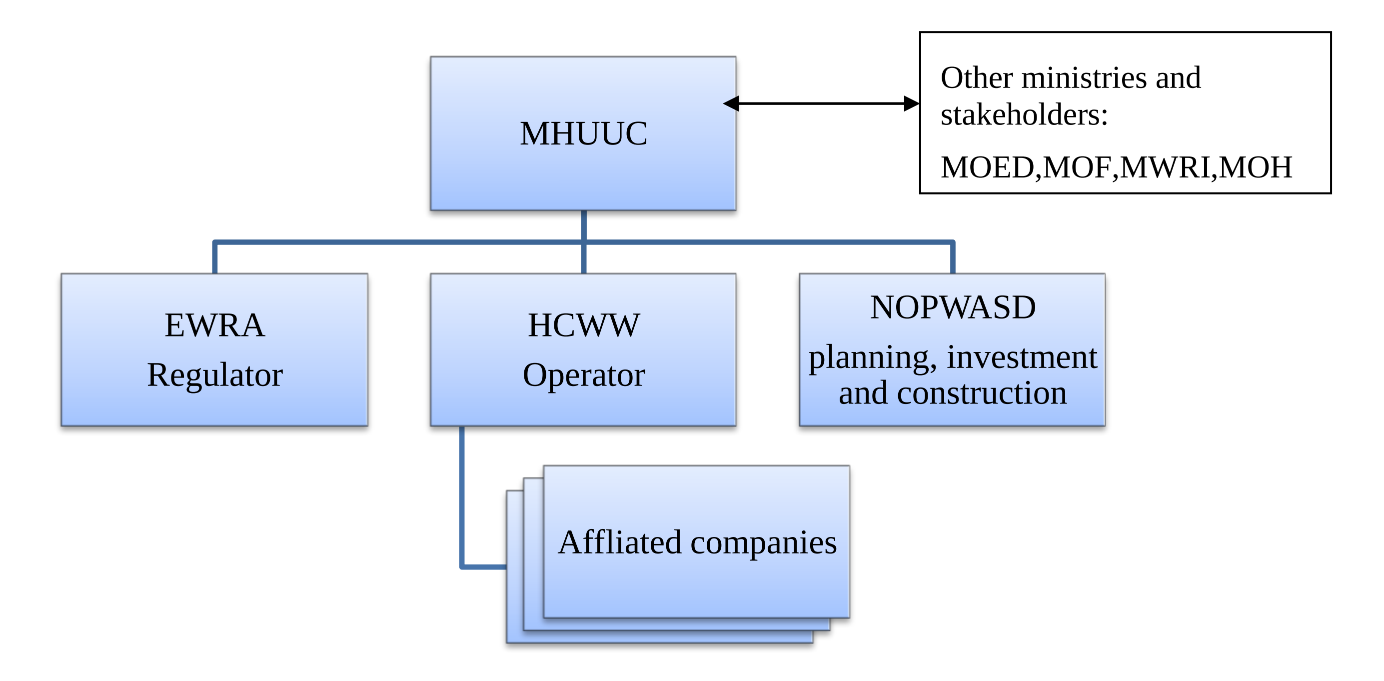


Figure 5: Hierarchies and relation between ASDCO and other relating organisations
Source of information: (MED EUWI, 2009)

- **National Organization for Potable Water &Sanitary Drainage (NOPWASD):**

NOPWASD is responsible for planning, design and construction and investments of all water and wastewater sector infrastructure; municipal drinking water purification plants;

distribution systems; sewage collection systems and municipal wastewater treatment plants to all the governorates.

This organization is the outcome of merging the National Org. for Potable Water and Sanitary Drainage (NOPWASD) which was responsible for the investments of all water and wastewater sector to all the governorates except Cairo and Alexandria and Greater Cairo and Alexandria Potable Water Organization (CAPWO) which was responsible for the investments of water and wastewater sector in Greater Cairo and Alexandria governorates.

- **Egyptian Water Regulatory Agency (EWRA)**

The institutional reform in the WS&S sector includes the creation of a regulatory agency, the "Central Authority for the Drinking Water and Sanitation Sector, and Protection of the Consumer" (Presidential Decree, 136 for 2004).

- **Water supply and sanitation facilities Operators**

Operational and maintenance responsibilities are delegated to local agencies, which are classified into three types of organizations:

- Economic or general unites operated under the public law and owned by the municipalities
- Local authorities operate under the public law and owned by the governorate
- Public Enterprises operate under the public business law and owned by the governorates.

Responsibilities in this area are being progressively transferred away from the governorates and local councils to the newly established water supply and sewage disposal utilities. The new enterprises are being consolidated step by step to the holding company (Seddik, 2010).

- The affiliated companies: The affiliated companies have a legal status separate from that of the municipality and work according to commercial principles under the public business sector companies law No 203 year 1991.

  - **The Holding Company for Water and Wastewater (HCWW)**

Operational and maintenance responsibilities are under the responsibility of the HCWW and its affiliated companies. The purpose of the holding company was set by a presidential decree, to purify, desalinate, distribute and sell drinking water and collect, treat and safely dispose of wastewater, either itself or through affiliate companies. It also aims at creating, managing and running a portfolio for its shares, bonds, securities and any other tools or financial documents.

5.4 Water sector challenges before the reform

The main drivers for the water sector reform on the central and regional levels include;

5.4.1 Financial challenges

MWRI (2005); concerning the financing of the investment projects and the O&M of water facilities, the sector suffered from a “Crisis level”: the financial situation requires an ongoing subsidization from the Ministry of Finance. Almost 90 per cent of the development, operation and maintenance costs of water services in Egypt are currently

funded by public sources. In 2002 accumulated deficits totaled EGP 7.6 billion (€1 billion) and accumulated debt totaled EGP 7.3 billion (€0.99 billion). The costs are increasing significantly for drinking water and sanitation. It grew from EGP 4.73 billion in 1997/98 to EGP 8.45 billion in 2003/04. During the period 1982-2004, EGP 25.0 billion (€ 3.27 billion) has been spent for potable water supply services and EGP 40 billion (€ 5.23 billion) has been invested in sanitation services.

According to NWRP the costs for water services for the next 15 years are expected to be more than triple that of the current expenditures.

Low tariffs, weak billing and collection systems; the utilities used to rely on manual systems, and inadequate operation and maintenance plans lead to a weak financial position.

Cost recovery problems and low tariffs not only impose a heavy recurrent fiscal burden on the national budget but also generate disincentives for operational efficiency, responsiveness to consumers and the most important it discourages financial investors and private sector participation.

Alternative scenarios for financial sustainability of the water sector need to be addressed.

The tariff system has not been reformed and prices are set very low: EGP 0.30/m^3 (less than 4 cents per m^3) for domestic use in Cairo (OECD, 2008). Until recently (before establishing the WS&S holding company), governors had the authority to set water prices up to a ceiling of EGP 0.23/m^3 (about 3 cents per CM) (MED EUWI, 2009).

Although this ceiling is below actual production costs by a factor of 3 to 4, not many governors used even this authorization (WB, 2005).

Future allocation of such high costs presents a heavy burden for the state budget.

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With the exception of Alexandria Water none of the previous water and wastewater authorities were covering operating costs. Revenue in the WS&S sector covers only 40 percent of the operational and maintenance costs and 20 percent of the total costs as shown in the table 2. The O&M subsidies to the subsector are estimated at EGP 3–4 billion per annum (€500 million per year), or 2–2.5 percent of total public recurrent expenditures. The debt overhang of the WS&S subsector has therefore reached EGP 14 billion (about € 2 billion) (WB, 2005).

Table 2: Recurrent unit costs and associated subsidies in WS&S

System	NOPWASD[1]	GOGCWS Cairo [2]	AWGA Alex [3]
Estimated capital and O&M costs	1.0	1.1	N/A
Subsidy	0.8	0.9	N/A
Average user fee	0.2	0.2	0.3
Rate: piaster per cubic meter	15-25	15-25	25-35

Source: Questionnaires to line agencies in Egypt, as part of preparing World Bank (2005)

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[1] National Organization for potable Water and Sanitary Drainage

[2] General Organization for Greater Cairo water supply

[3]Alexandria Water General Authority

Wastewater tariff is 20 percent of water tariff for Cairo and 35 percent for Alexandria

These are applicable to the residential units, which have water meters. Units that do not have meters or that have broken meters pay a fixed monthly charge for water consumption (LE 5-25 monthly per unit). The charge changes with the house area.

5.4.2 Organizational and institutional challenges

- **Communication and coordination**
  - **Cross sectoral communication**

Sectoral policies are formulated individually by the responsible ministries, while MWRI sets the overall water policies.

As mentioned before, more than ten ministries are involved in water management, so efficient institutional mechanisms to coordinate the different stakeholders are vital. According to a study, financed by the World Bank 2005; the inter-sectoral coordination before the reform was insufficient to follow the holistic approach necessitated by IWRM.

Most water related policies so far are developed and set by each ministry individually and are not as such comprehensive national policies. However policies and practices which aim for a more integrated, participatory and environmental sound management approach are endorsed and are under implementation through the IWRM effort (MWRI, 2005).

  - **Communication within the sector**
    - **Unclear responsibilities**

The institutional framework in WS&S sector in Egypt has intended to distribute the responsibilities for maintenance and investment; but the consequences yet the sector suffers from fragmentation of authority and lack of focus.

Because of the interrelated functions between MHUUC and MOLD, there have been disputes about who is responsible for what. In general the authorities, unites and enterprises were affiliated technically to MHUUC and administratively and financially to the

municipalities or governorates respectively. Such institutional set up with the absence of accountability system has caused ad hoc decision making and in many creates a breeding ground for corruption in both O&M and investment activities. Utilities used to report to at least ten different agencies, the reports and indicators provided differ depending on to whom they are reported due to that there is no crosscheck system or any kind of communication between different stakeholders.

In addition to that, there is an important problem of centralization in tariff setting. In theory, tariffs are set in accordance with local authorities. However, in practice, water supply administration in Egypt is centralized; local governments have neither technical competences nor budgets to manage water services (OECD, 2008).

Furthermore, the overlapping of project investment planning responsibilities has caused problems with unfeasible project or uncompleted project such as building a treatment plant without being connected to sewer system.

- **No independent regulatory**

The institutional set up has caused problems – partly because there has been no independent regulator in WS&S sector and this has made things more difficult and brought more confusion to the sector. The MHUUC has been powerless to regulate the sector especially that there were other ministries involved in the planning, investment and operational and maintenance process.

- **Human resources challenges**

One important constraint has direct impact on the low performance of the water utilities in Egypt is insufficient use of manpower:

- Utilities were over staffed (staffing ratio was over 10 employees per 1000 service connections)
- Lack of skilled staff in financial and technical fields.
- There is neither a system to assess the staff performance nor a rewarding or sanctioning system for the employees.

5.4.3 Technical challenges

The sector used to suffer many technical and operational challenges. Besides the high connection rate in urban areas, the performance of water management and operational performance are relatively poor (Hassanein & Khalifa, 2006). Water supply is discontinuous (about 12 hours per day) with water quality deterioration, unaccounted for water is very high (50 per cent in Alexandria and Cairo) and the operating cost coverage ratio is very low (40 per cent) (HCWW, 2009).

5.5 Reform in the water sector

Egyptian government has taken significant steps in the direction of IWRM and institutional reform on the political and conceptual level. The WS&S sector has been undergoing for several years with priority given to the institutional reform till the 2004 when Egypt has made the major reform step in establishment of the HCWW and WERA.

5.5.1 Holding Company for Water and Wastewater establishment

In 2004, the government of Egypt regroups all drinking water and sanitation entities of the country under one single holding company. HCWW was established by the presidential decree 135, under the jurisdiction of Law 203/1991 (commercial law) and operates under

the supervision of the MHUUC. According to the new decree, the General Water and Sanitation Authority and the General Economic Authority for Drinking Water and Sanitation - both of which operate in the governorates or within public sector companies - become affiliated with the holding company. These governorates and companies include Alexandria, Aswan, the Beheira Water Company, Beni Suef, Cairo, Dakahlia, the Damietta Water Company, El Minia, Fayoum. Later another nine companies were created in all other governorates except in Kana cities and Kailobia governorate still in the process to be involved.

The company's debt is estimated at 13.8 billion EGP (OECD, 2008). Thus, its first mission is to seek new financial resources to sustain the operation and management budget and to relief the burden on the government.

- **Structure of the HCWW**

According to the decree 135 of its establishment; the mandate of the holding company and its affiliates covers purifying, transporting, distributing, and selling drinking water as well as collecting, treating, safely disposing of sewage, operate and maintain the existing projects while the investment for new projects is the responsibility of NOPWASD. In practice the holding company is playing a big role in planning new investment projects in coordination with NOPWASD and MOF (Moawad, 2010).

HCWW introduced its own regulations and by-laws to operate on a commercial basis and aims to achieve a phased cost-recovery not only of operations and maintenance but also depreciation and new capital investments in the future. The by-laws will be governed by the

legislation of the public business sector and issued by the minister following approval by the board of the respective company (WB, 2005).

The establishment of HCWW is a transitional stage before further reform, the expected vision in the water sector is anticipating private sector participation and a possible privatization of the holding company in the coming years and to minimize the role of HCWW or and activate the role of regulatory agency (Moawad, 2010) and (Abdelwahab, 2010).

- **The organizational structure of the HCWW**

As illustrated in Figure 6, the responsibilities are divided in hierarchy pattern into four subdivisions; two are under the supervision of two deputy chairmen, one for technical affairs of projects (planning, operation and maintenance but not investment) and the other for financial and administrative affairs. The other two subdivisions, the assistant to chairman for quality and researches which is responsible for water quality control, drinking water labs, wastewater labs and researches centers.

The internal audit general department, public relations, and general department for legal affairs fall directly under the supervision of the chairman.

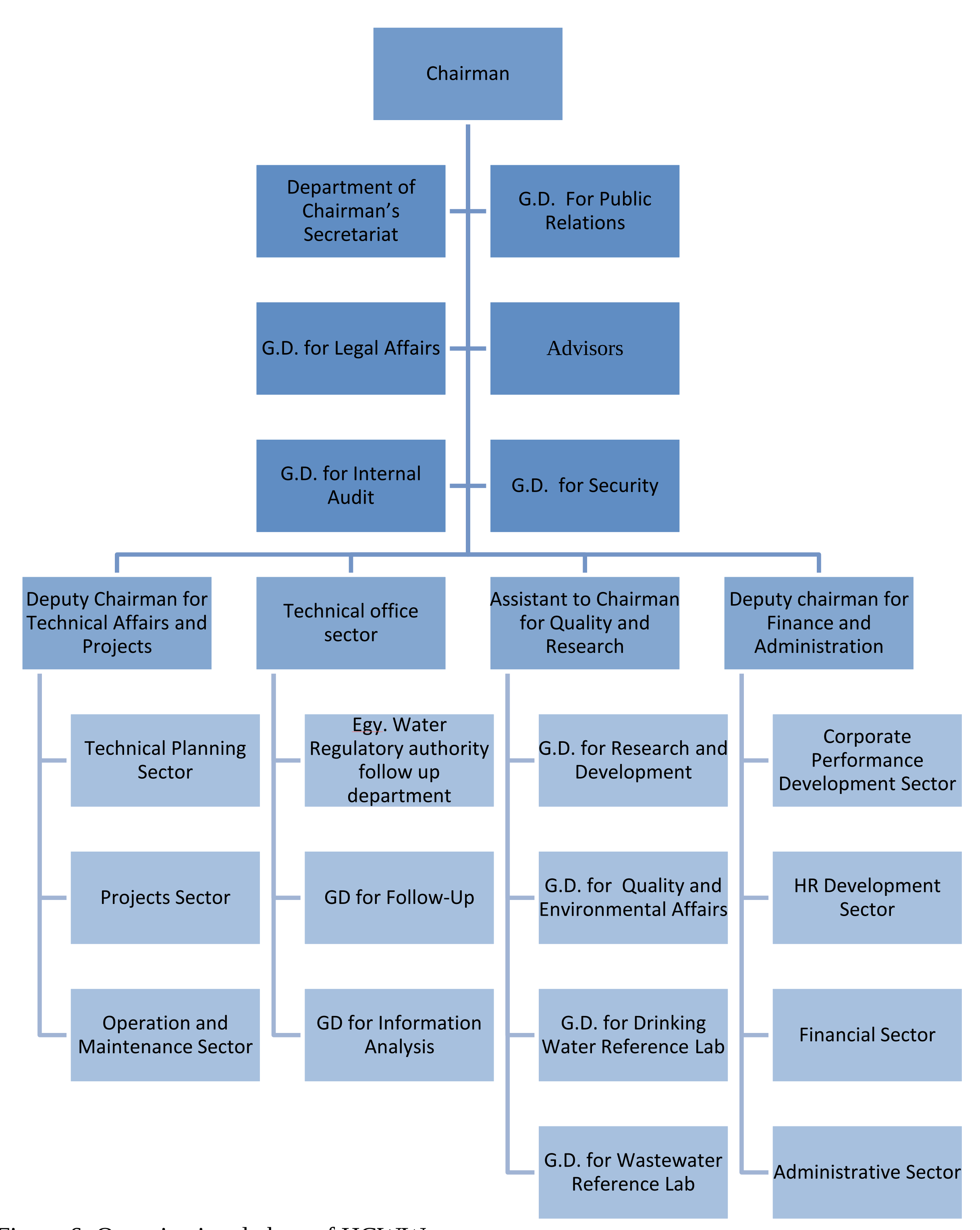


Figure 6: Organizational chart of HCWW

Source: (HCWW, Organisational chart, 2005)

- **Cooperation between the holding company and the affiliated companies**

The affiliated companies report quarterly their performance indicators to the holding company. HCWW reports to the board of directors and this latter is responsive to a general assembly. Good performance in the affiliated companies results good incentives for its employees. By contrast low performance does not lead to punishments or penalties (Moawad, 2010).

The structures of the general assembly and board of directors for both the HCWW and its affiliated are described below:

General assembly of the Holding Company

It has 14 members: minister of housing and utilities and new communities (chairman) and thirteen members. They are representatives from different public bodies such as ministry of finance, universities and others. One of the members must be customer representative.

Board of directors of the holding company

Comprises ten members of field's experts and chaired by the chairman of the holding company.

Board of directors of the affiliated companies

Chaired by the HCWW Chairman and comprises six members three are appointed by the chairman of HCWW and three are elected by the companies employees according to the law 73 for the year 1973 (HCWW, 2008).

With the exception of Cairo & Alex four experts in the field and four members are elected and four are appointed by the chairman of HCWW.

- **The Strategic goals of the holding company**

The strategic goals of the Holding Company as defined in the decree of its establishment (Presidential decree 135 for the year 2004)

- Improve the quality of customer service to achieve satisfaction.
- Achieve financial stability of the water and wastewater sector.
- Assure the professional development of Holding Company and subsidiary companies.
- Improve the skills of the sector water and wastewater staff.
- Protection of sector investment.

The Government's role will be limited to setting national policies for improving municipal water and wastewater services and expanding the coverage of these services.

5.5.2 Regulatory body

The second presidential decree (136 for 2004) covers the creation of the central authority for the drinking water and sanitation sector, and consumer protection. This decree focuses on regulation and monitoring for quality control and consumer-price control. This regulatory agency reports to the Minister of Housing, Utilities and Urban Communities. It is expected to be the liaison body between the government, the society and the holding company to ensure that national policies and regulations are followed.

The Minister of Housing heads the governing board, which includes members from outside the subsector namely, two technical experts and a representative of the consumers, seconded by the Minister of Housing. The ministries of Finance, Health and Population,

and Environment are represented on the governing board and NOPWASD is expected to act as technical adviser (WB, 2005).

Its responsibilities as defined in the Presidential Decree 136/2004 of its establishment:

- Ensure that water treatment, desalination, transfer, and distribution activities; and wastewater and industrial liquid discharges collection, treatment and safe disposal performed by governmental agencies and water and wastewater units established by private sector projects are performed in compliance with laws and bylaws valid in Egypt, especially those related to quality and environment protection.
- Review plans of water consumption, treatment, desalination, transfer, and distribution; and plans of wastewater and industrial liquid discharges collection, treatment, and safe disposal.
- Provide technical assistance to the aforementioned projects in terms of studies on the basis of which target technical, commercial, economic, and financial performance levels are identified.
- Follow up periodically and verify that the costs of water treatment, desalination, transfer, and distribution; and the costs of wastewater and industrial liquid discharges collection, treatment and safe disposal - performed by the aforementioned entities – are calculated according to law; and guarantee the interests of projects and consumers.
- Ensure that these projects comply with the achievement of technical, commercial, economic, and financial criteria; and apply tariff schedules.

- Study the applications for tariff determination and adjustment to achieve financial and economic equilibrium of the aforementioned projects, and take into consideration the segments and patterns of consumption; in preparation for approval by the cabinet.
- Review and approve standard forms of contracts and agreements which structure the relationship between the aforementioned projects and consumers.
- Monitor the availability of administrative, technical, financial and economic efficient staff in the aforementioned projects.
- Ensure the quality of technical and administrative services provided by the aforementioned projects, and provide technical assistance to them.
- Spread information, reports, and recommendations that help the aforementioned projects and consumers to know their rights, obligations, and the nature of the role played by the Agency, in a full transparent framework.
- Investigate subscribers' complaints to ensure the achievement of balance in protecting the interests of the aforementioned projects and consumers, and work towards the limitation of disputes that may arise in this concern.

It is clear from the functions of the EWRA that it’s the key player in the WS&S sector; yet these functions are not activated till date. Even the decree of its establishment was in 2004, EWRA did not start operating before 1 July 2007, albeit with limited facilities and staffing (MED EUWI, 2009). Efforts from the government and the international cooperation agencies are given to support EWRA in capacity building and institutional support in starting initial work program.

Its initial work program includes conducting cost services analyses, tariff adjustment in selected utilities, developing a schedule of declining subsidy levels linked to operational

and financial performance benchmarks, developing a plan and budget for flow metering of all treatment plants, water quality auditing for raw water sources and treated wastewater and developing minimum services standards (MED EUWI, 2009).

However, this newly created regulatory agency is not autonomous. Its governing board comprises several ministers: the Ministries of Finance, Health and Population and of the Environment and the Minister of Housing heads the governing board.

5.5.3 Communication and coordination

The first major step to coordinate the sector management and planning is the establishment of NWRP which secure coordination structures between ministries. Next step is to build communication strategy within MHUUC and to clarify the rules of each organization and within MWRI in support of a holistic structure has not yet been decided upon or established.

5.5.4 Water policies and regulations

- **The National Water Resources Plan (NWRP)**

In 2005, the Ministry of Water Resources and Irrigation launched its first IWRM' principles based national water master plan covering till 2017. However, the Ministry's vision extends to 2050. It focuses on enhancement of the legal basis for water allocation, stakeholder participation in water management, capacity building, as well as emphasis on effective coordination and communication among the water stakeholders.

The National Water Resources Plan (NWRP) 'Water for the Future' describes how Egypt will use its water resources in a sustainable way from a multi-disciplinary perspective.

- **Master plan for water and sanitation**

With technical and financial support of EU, HCWW has initiated a master plan for investment projects for water and wastewater in order to cover all Egypt needs till 2037 with considering priorities and funding strategies.

According to HCWW financial report (2010), capital expenditure of over US$2 billion will be ploughed into water supply, and more than US$3.5 billion will be spent for wastewater between 2012 and 2017.

Most of the projects included in the master plan were tendered, some were awarded and the others are in process.

- **Water supply and sanitation act**

The draft of water act is going to be approved in the next parliament round in 2010. It provides the framework for the provision of drinking water and sanitation in Egypt, and proposes full autonomy to the HCWW, tariff setting policies and definition of the role of the regulatory body and monitoring of technical, economic and financial performance of service providers, and receive complaints about service (Moawad, 2010).

Access to drinking water and sanitation is not explicitly recognized as human rights in the act draft. Even though it‘s mentioned in the act that the government is responsible to assure social tariff for low income citizen, but it does not outline the rights of people to access sufficient, safe, affordable and acceptable specifically.

The draft water act affirms that the State is responsible for setting a social tariff for people of limited income (UN HRC, 2010).

5.6 Process of HCWW establishment

The establishment of HCWW in Egypt comes after a long chain of sector reform attempts. With the technical and financial support of USAID; Egypt started reforming its water sector since 1998 and made steps ahead before reaching the most significant step of HCWW foundation. Steps of the reform process since 1998 till date:

1. The first phase of project of legal, institutional and regulatory reform (LIRR)

MHUUC (2002); the first phase of the project operated from June 1998 to July 2000.

LIRR I was highly successful in designing the institutional architecture for; carrying out reform. It successfully defined the key functions of reform such as privatization process management, independent regulation and rate making and assigned them to quasi-independent entities to be created for those purposes. Draft a presidential decree and a draft law on Private Sector Participation (PSP) were developed and approved by the MHUUC and subsequently reviewed by the State Council and the Prime Minister. Following the initial review, the presidential decree has been revised, but retains the key provisions concerning the delegation of authority for price and quality of service regulation to a new regulatory agency while preserving the role of local utilities in managing operations and maintenance. A central department for PSP is also retained in the draft legislation to supervise local utilities in identifying, structuring, and closing PSP contractual arrangements with strategic investors and for operators.

2. The second phase of LIRR

USAID and the Egyptian government agreed to implement LIRR II as a natural and seamless extension of LIRR I. Its design focused on assisting the in implementing the

reforms stipulated in the draft law and decree prepared under LIRR I. Support was to be provided in institution building and strengthening the capacities of the EWRA and CDPSP. LIRR II was also intended to provide assistance in processes, procedures, and documentation for management of the project life cycle for PSP engagements.

3. The establishment of the HCWW and Transformation of the department and authorities into companies.

With active financial support from USAID and the technical support of CH2MHILL, the major reform step was done in 2004 in establishment of the HCWW. According to an unpublished road map done by an expert accompanied the reform process (Mohamed Moawad, Head of HRD sector); this reform includes the next process:

- Lunching the presidential decree 135 year 2004 of the HCWW establishment
- Lunching regulations and by laws for the HCWW and its affiliated companies such as workers by law
- Fixed assets valuation and determination of the capital of the Water supply and sanitation authorities and companies.
- Decrees from the governors to compose committees with representatives from all concerned institutions to evaluate the fixed assets
- Transfer ownership of urban water supplied from municipalities to the newly established state owned Holding Company.
- Formulation of the general assembly's of the companies headed by the general director of the Holding Company, representative from the board of direct ors of the HC and tow members from public and tow from the worker union

- Formulation of the board of directors (the head is nominated by the general assembly, three members are nominated by the general assembly and three elected by the company's members.
- Writing off existing debt which amounts of 13.8 billion EGP. In order for the holding company to fulfill its mandate of reforming the sector, restructuring or writing off is inevitable (as of end 2005 the Government agreed to write off this debt).
- Preparation of guidelines for the holding company and its affiliated companies
- Development of the organizational structure of the HCWW
- Development of the organizational structure of the affiliated companies to fit the new legal environment of the business public sector companies law 1991 year 2003
- Support the affiliated companies to develop their own job descriptions for the departments and staff.

5.7 Challenges during the reform

5.7.1 Work culture

Work culture is the set of values and norms which inform and guide everyday actions.

The culture forms a pattern of unstated, shared and powerful beliefs and assumptions which translate into behaviour which can be observed (USAID, 1988).

Water utilities were operating for several decades as public institutions financed by the central treasure and have no control over its resources with complete absence of commercial principles. The reform was a big step in the direction of commercialization to

improve the situation of the water and wastewater sector. Yet, the responsible companies are not in a position to perform their duties economically and efficiently mainly due to the inherited culture from the previous institutional set up and the dominant of engineering rather than economical and legal thinking in water business.

This culture was created in an unintended way due to the laws and regulations were in act coupled with the absence of an accurate accountability system over many years.

The HCWW is assessing the affiliated companies to build the capacity of their engineering staff in the fields of management and economy as well as hiring economist and other specialists in different management fields as well to create the institutional framework for the existence of such specialists through internal statue by laws of the companies and job descriptions of their staff.

5.7.2 Power Transformation

The success the HCWW one year after operating drives the government to decide on transferring all water supply and sanitation utilities in the whole country into affiliated companies to the HCWW (Seddik, 2010). This process automatically involves power transformation since these utilities used to be overseen by the municipalities or governorates. The Institutional reforms associated with changes in power and/or benefit distribution inevitably create considerable political opposition (Dinar, Balakrishnan, & Wambia, 1998).

The local development ministry represented whether by the municipalities or by the governorates are not in favor to abandon their responsibilities of the operation of WS&S sector nor to shed the power to the HCWW (Seddik, 2010).

The HCWW faces an inevitable resist change through fear of losing part of their financial advantages or of sanctioning an increase in the powers of the administration.

5.7.3 Lack of Data

Lack of adequate data is one of the most challenging factors in front of the communication between the HCWW and its affiliated companies. When applying monitoring and evaluation system, no accurate figures were existing concerning water produced, water consumption, costs analyses or any other needed data for calculation of performance indicators. (AbdAllah, 2010)

The HCWW is supporting its affiliated companies to create data base and common understanding of a given indicator and its variables.

5.7.4 Fixed assets valuation

Fixed asset valuation in water utilities generally is a complex matter, involving governing laws, operating rules and regulations, administrative law rulings, recommended practices, designated procedures, and specific conflict-of-interest provisions.

In addition to the complicity that the nature of the water facilities (underground pipes or shared water resources); the integration of different bodies in water supply and sanitation sector in Egypt has resulted on unclear and distribution of ownership of the assets which makes it even more difficult to evaluate the assets of the HCWW (Seddik, 2010).

5.7.5 Tariff setting

There is still no suitable regulatory framework that enables tariff setting neither in local level nor at the HCWW level. Even though the Holding Company is expected to achieve full financial independency through full cost recovery in the long term, but still does not have control or at least participation in pricing setting. The tariff in Egypt is one of the lowest in the world; this significantly affects the cost recovery rate and challenges the HCWW to reach its target in cost recovery.

5.7.6 Accumulated debt

HCWW had a total accumulated debt of 13.8 EP; In order for the holding company to fulfil its mandate of reforming the sector, restructuring or writing off existing debt is inevitable. Efforts have been made with coordination between Ministry of Housing and Ministry of Finance to solve the accumulated shortage and debts of the subsidiary companies. The Ministry of Finance agreed to write down the accumulated debt and deficit of the subsidiary companies (HCWW, 2010)

5.8 The role of international development cooperation

Over the last few years Egypt has introduced a number of important initiatives with international development cooperation in order to improve water supply and sanitation services. Egypt has received a significant amount of international financial and technical support in the sector. Egypt is one of the top ten largest recipients of international aid (OECD, 2010).

According to statistics published on the web site of the international cooperation in Egypt; Among 35 international partners in Egypt, USAID is the largest donor with 26 percent of total annual Official Development Assistant (ODA) see figure 7.

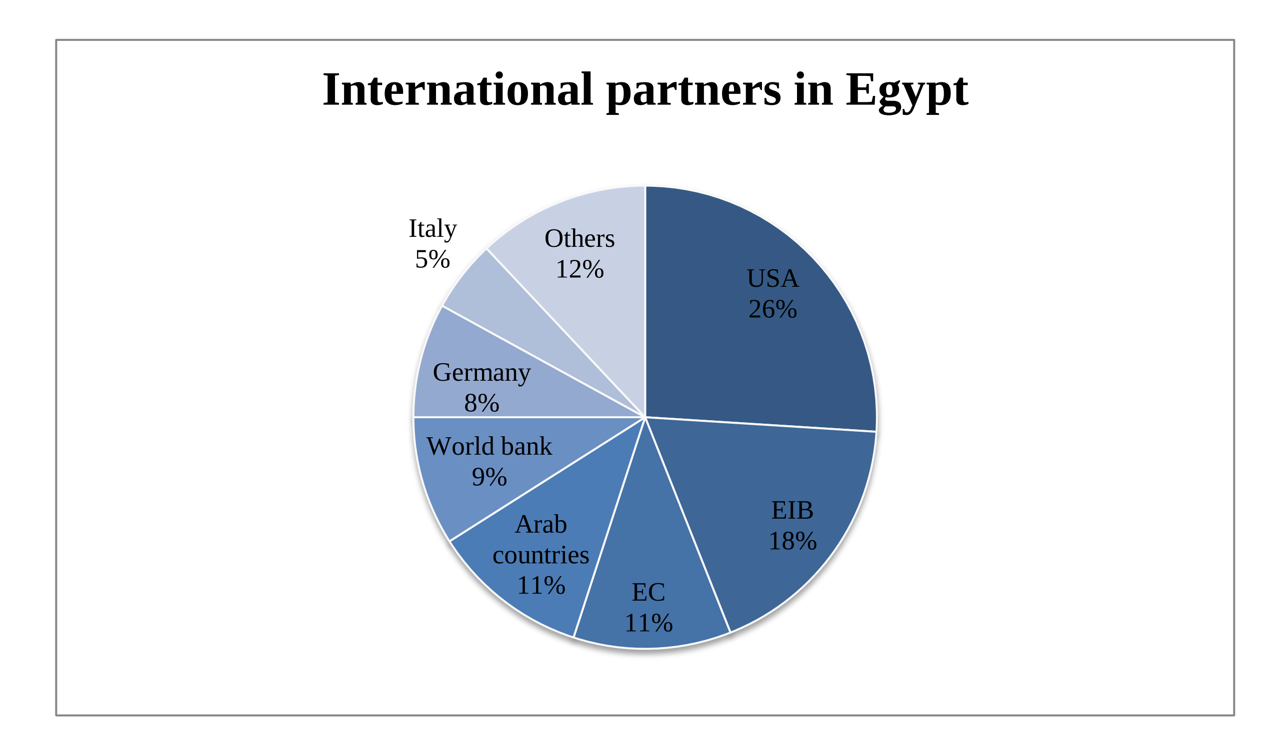


Figure 7: Main international cooperation partners in Egypt for the year 2006

Resource: (MIC, 2006)

EIB is the second largest international partner, followed by the European Union (EU), Arab countries, World Bank and Germany.

5.8.1 Technical and financial support before the reform

The USAID support to the water supply and sanitation sector reform in Egypt started in 1998. However the existence of USAID in the Egyptian water sector has long history. USAID is supporting the water infrastructure with more than 3 billion US $ since 1975 till present (USAID, 2007) projects such as; Alexandria Wastewater System, Cairo Water

Supply, Cairo Sewerage, Canal Cities Water and Sewerage, Provincial Cities, and later on Secondary Cities as well in institutional development projects parallel to the infrastructure projects were needed (USAID, 2007).

- **Legal, institutional and regulatory reform program phase (LIRR)**

As mentioned above in the process of HCWW establishment; in 1998 USAID lunched LIRR program in two phases. The goal of the first phase (1998-2000) is to increase autonomy and promote commercial management of local utilities, as well as to encourage private financing and management of services and the second phase (2000-2002) to support the establishment of the reform designed in the first phase (MHUUC, 2002).

5.8.2 Technical and financial support during the reform

- **Assistance for Egypt Utilities Management**

The major step in the sector reform of the establishment of HCWW and EWRA was made with the financial and technical support of USAID. The initial plan of the six year program (2003-2009) was extended more four years to set the end of the program in 2013 with total support from USAID amounts of four hundred nineteen million five hundred sixteen thousand two hundred fifty-nine U. S. Dollars ($419,516,259). It aims primarily at building HCWW capacity to manage the subsidiary utilities, to improve their operational and financial performance (USAID, 2007).

This Agreement includes funding for improvements of water and/or wastewater facilities and related community infrastructure, and institutional support for the Water and Wastewater Sector in Egypt. This assistance will provide support to the HCWW and its subsidiary companies, MHUUC and EWRA.

The USAID assistance focuses on:

1. Strengthening the institutional and financial capabilities of water and wastewater companies.

2. Strengthening the program management capabilities of MHUUC and the HCWW,

3. Constructing small-scale water and wastewater facilities, and

4. Continuing current assistance to EWRA in its efforts to regulate the Sector.

5.8.3 Technical and financial support after the reform

A number of development organizations are currently supporting HCWW in different aspects to perform its role in the sector and to create or transfer new water utilities to affiliated companies. Major projects and programs currently in place to support HCWW and related institutions in water supply and sanitation sector:

- **Improved Water and Sanitation Services Project in the Delta (IWSP)**

European Commission (EC) (2010): this project concerns a joint effort of the Egyptian government (contribution EUR 82 million) supported with a structured and coordinated donor contribution of EUR 213 million for the period (2007-2012).

In addition to the EC grant of EUR 29 million from the European Neighborhood and Partnership Instrument (ENPI) and a €5 million funding from the NIF (Neighborhood Investment Facility), Kreditanstalt fur Wiederaufbau (KfW) will contribute with EUR 69 million, European Investment Bank (EIB) with EUR 70 million, and Agence Française de Développement (AFD) with EUR 40 million. KfW has accepted to be the lead donor.

IWSP Specific Objectives

- Improve water quality and output as well as wastewater services in four Governorates through a sector investment program.
- Develop investment, planning, steering and monitoring capacities in the HCWW
- Strengthen planning, implementation and operation capabilities of the water and wastewater management local companies;
- Support the gradual introduction of a tariff system that assures a full coverage of operating and maintenance costs (including depreciation);
- Improve technical and financial performance of the water- and wastewater management companies in the selected Governorates.

❖ **The Integrated Sanitation and Sewerage Infrastructure Project**

World Bank funded project was approved in 2008 and is expected to end in 2014. Its main objective to plan, design and construct sanitation systems in a selected priority area within the command areas of Mahmoudeya and Mit Yazid. Furthermore, a local result-based monitoring and evaluation system is established in order to improve sanitation coverage and thus environmental and health conditions. The project also contains a component of institutional development and capacity building. According to the World Bank, the project is the first large scale effort to address rural sanitation in Egypt. The total cost of the project is 201.5 million USD, out of which the World Bank provides more than half (120 million USD) (EIU, 2009).

- **Water supply and sanitation reform program WSSRP 2005- on going**

The 2005 on-going EUR 80 million EU-Water Sector Reform Programme (WSSRP) supports many initiatives related to water and wastewater sector policy development and strategy reform EU (2009).

The project focuses on the legal, financial and institutional reforms of the water sector at large covering water resources management, water supply and sanitation and water-related public finance management.

The main objectives:

  - Develop Water and Wastewater Master Plans for the affiliated companies.
  - Rural Sanitation Strategy, it is the first country-wide strategy of this kind, financed under WSSRP.
  - Water and Waste Water Law reforms that define more accurately the responsibilities and mandates of the different institutions active in the sector (MHUUD, HCWW & affiliated companies) and at regulating their interaction.
  - Another Euro 120 million grant from EU still under discussion, all of which will go to the Holding Company. The entirety of this money will be spent on Upper Egypt rural sanitation. Opportunities in the Egyptian.

- **Institutional Capacity Building for EWRA and HCWW**

This technical assistance project, funded by EC, provides operational technical capacity of EWRA with a view to developing its key basic functions as a water economic regulator.

❖ **Water and Wastewater Management Programme (WWMP)**

This program is a German funded programme. WWMP is supporting HCCW for building its capacity with regard to capital investment planning and to corporate management towards its subsidiaries.

❖ **Italian-Egyptian Capacity Building Programme for Integrated Water Supply and Sanitation (IBISS)**

It is an EC-funded project via the Life programme. This project focuses on water leakage control and reduction, providing operational support to three subsidiaries of HCWW, and subsequently transferring leakage control know-how to HCWW technical management staff.

❖ Other supporting programs to the HCWW from different development organizations include:

- Technical support offered to six purification plant and institutional support to the drinking water company in Cairo. The whole program is a grant from the French government to the HCWW.
- Technical assistance to Cairo Water Company to procure leak detection equipment and provide technical training grant from Italian government (€ 800,000)
- JICA technical assistance to Sharqeia Water and Wastewater Company
- Danish technical assistance (7 million EGP about € 1 million) to Aswan Water and Wastewater Company.

6 The results: HCWW’s achievements

The achievements of the holding company are assessed according to five points considered internationally as characteristics of well performing water utilities. These points are: Human external autonomy, accountability, market orientation resources and capacity building, and costumer orientation.

6.1 External autonomy

An adequate level of autonomy is a prerequisite to the success of institutions in the water sector. Autonomy of an institution is the degree of independence from the national government or other governmental or regulatory bodies. External autonomy is concerned with the degree of independence from external interference that is provided to utility managers for important decision making. It significantly affects the results achieved by the utility. Such decisions include inter alia; tariff’s setting, assumption of debt, procurement, decision making about budget, revenues, hiring levels, pay and incentives, control of personnel, institutional policies, planning and construction of projects. These decisions are important to provide guidance and direction in achieving the objectives of the institution (WB, 2006)

6.1.1 The autonomy of the HCWW

- Administrative autonomy

HCWW enjoys the power to develop its own strategies to achieve organizational goals. It proposes long-term planning such as the master plan for water and wastewater to meet the

expected demands at the country level. However; the approval of such studies and plans, including the construction of recommended facilities is done in the MHUUC.

The holding company as well its affiliated companies have the power to determine their own organizational structure including roles and responsibilities of major divisions (Khedr, 2010).

HCWW establishes and maintains staffing levels sufficient to meet human resources needs, and establishes levels of employee's compensation, including salaries and benefits, sufficient to attract and retain capable staff. HRD sector is in charge to develop job descriptions and guidelines adequate to institutional needs in order to discharges, disciplines, and promotes personnel (Moawad, 2010).

According to the bylaw NO 263 for the year 2004 which regulates the employment related issues; such as hiring, firing, salaries and incentives; HCWW and its affiliated companies have the power to hire and fire their staff. Till now this behavior does not exist in the work culture and needs time to be adopted. The HCWW counts 120 000 public workers for 11.3 million water supply connections (HCWW, 2009). (This indicates a low productivity of employees with more than 10 employees per 1000 connections, while the international standard is 2-3 employees per 1000 connections). If the international standards are achieved; more than 50000 employees would lose their job which means a socioeconomic crisis. In order to downsize the overstaffed companies, a long term strategy is in use: The retired staffed are not replaced 100 percent and hiring process is based on qualification needed. In the long term run the companies will reduce staff number without causing a socioeconomic crisis. In addition the HCWW would adopt gradually new culture in human resources management meanwhile.

- **Financial autonomous**

More power is given to the decision makers in the new established companies in term of procurement and financial management. This shedding power has resulted acceleration of bidding and tendering process. Consequently, accelerating the projects and increase effectiveness in operation and maintenance process is significantly acknowledged by the decision makers in the companies.

Since the HCWW has not achieved a fully operational and maintenance costs recovery, subsidies are still needed from the central government. This means that an approval of the annual budget is required from the Ministry of Finance and other related governmental bodies. However; preparing annual operating and maintenance budgets consonant with needs and available revenues; is successful in obtaining approval for the budgets.

Beside the fact that the tariff for the Cairo Company has increased by 100 percent, HCWW is still not able to adjust water tariff in its affiliated companies which remains a big challenge in term of its financial stability. The decision making process of adjusting tariffs is very complicated. Agreements from seven governmental bodies need to be obtained in hierarchy manner before the tariff is adjusted (see Figure 8). The given water company has to proposes a tariff increase to the HCWW, which sends the proposal to the EWRA for reviewing the tariff adjustment. EWRA makes political, economical and technical analyses before reporting the proposal to the MHUUC. If this later agrees upon it; the proposal has to be reviewed by the cabinet high committee on policy and economic affairs before it is approved by the Egyptian Parliament (MED EUWI, 2009).

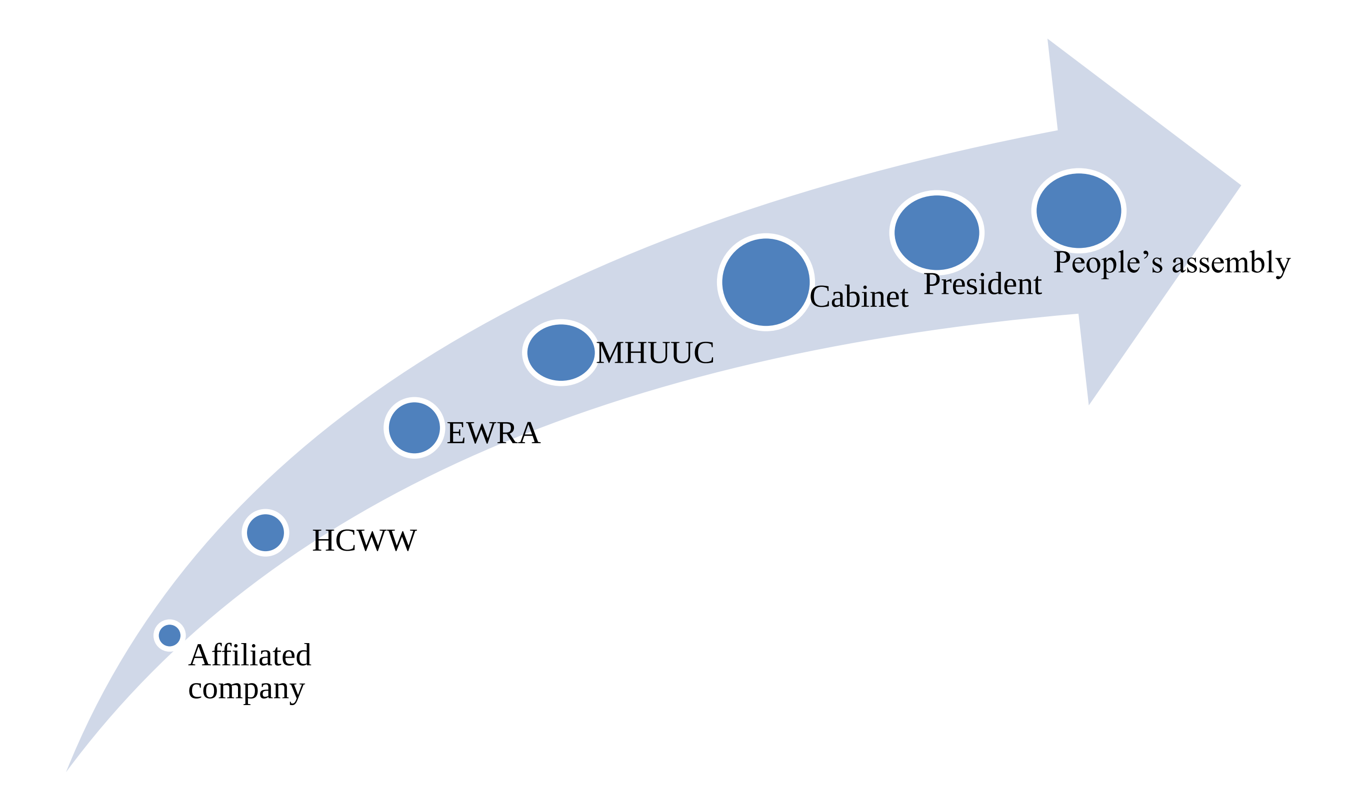


Figure 8: Involved instances for adjusting water and wastewater tariffs

Source of information: (MED EUWI 2, 2009)

It is assumed that the decision making process will be simplified in the near future when the new water act is approved. The proposed process would end in the hand of EWRA, which will be the final instance to decide on tariff increase. It is expected that each water and wastewater company will be able to apply its own tariff according to its expenditure.

6.2 Human resources and capacity building

6.2.1 Working environment improvement

According to Steven R. Covey (2008) good working environment provides sufficient conditions in four dimensions to satisfy physically, mentally, spiritual and emotional human needs. This includes:

1. Salaries, promotions and incentives are relevant to productivity and achievements.
2. Staff places a value on maintaining the physical plant (offices, treatment plants, grounds) of the organization. Facilities look clean, well maintained, and attractive.
3. Recruiting staff, providing skills to do the jobs and grow professionally, and providing adequate job satisfaction and wages and benefits to retain competent personnel.
4. Effective institutions maintain staff through providing formal training programs and informal training that occurs through on-the-job training, sufficient incentives, compensation, employee benefits, and promotion opportunities so there is a minimum of unwanted turnover. Institutions that develop and maintain staff and show their employees are their most important asset.
5. An observable team spirit exists among the staff.
6. Staffs express a sense of ownership and pride about working in the organization.
7. Sub-groups and alliances within the organization serve as a positive means of informal communication and a rallying point in the organization during periods of crisis or to support healthy change.

The labor bylaw NO 263 of 2004 for the HCWW and its affiliated companies was approved by the minister of housing and utilities and urban communities. It gives more flexibility and internal autonomy to the companies in salaries setting, incentives, hiring and firing of staff.

This crucial point is the key in increasing the productivity, staff motivation and improve working environment.

In addition to salaries adjustment and incentives working environment is improved in other dimensions:

- Facilities and work requirements such as Personal Computers (PCs) and other office equipments as well as training needed to the staff.
- Update the HR plan and create data base to identify the number and qualification needed, the gaps and the over staffed zones
- The HCWW started a capacity building program in the area of financial, technical and administrative fields to fit in the new role after reform
- Establishment of training centers in the affiliated companies to offer qualifications and training to staff in all fields related to WS&S sector not only in Egypt but also in neighboring countries like Syria, Yemen, Sudan and Iraq.
- International training for the staff to be at the state of the arte in the sector and participating in conferences and international workshops

The organizational chart of the HRD sector (figure.8) shows that a great focus lays on the HR management with different sub sectors: (i) General directorate for career path direction and planning is responsible for capacity building development follow up evaluation and audit. (ii) General directorate for training, follow up and technical support: is responsible for subsidiaries training, leadership development and follow up on them, (iii) General directorate for human resources planning is responsible for labor force planning and employees benefits.

One result of improving working environment is the indicator of staff's turnover. This has not been is not calculated yet. However; the HCWW is attracting the most qualified people in the sector in Egypt and turnover would not exceed the percentage of retired staff.

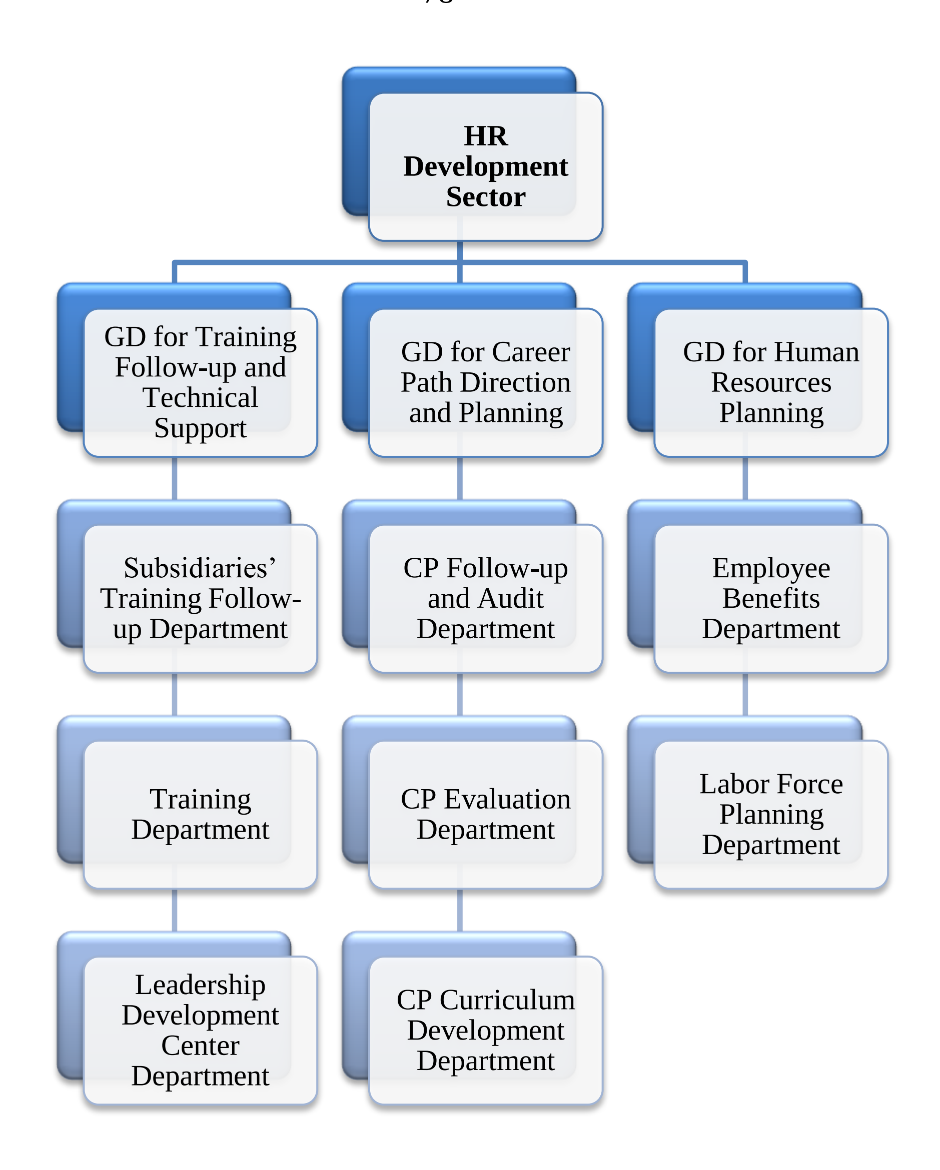


Figure 9: Organizational chart of HRD sector

Source: HRD sector 2010

6.2.2 Technical schools

In the context of the cooperation with the ministry of education the HCWW established three technical schools to create middle level qualified staff in the technical field to secure competent staff for working in operational and maintenance of WS&S facilities.

Those schools fall under the jurisdiction of the holding company and supervised by the ministry of education. HCWW provides the methods needed according to the sector qualification requirements and offer the practical experience for the students.

6.2.3 Cooperation with the Universities

The HCWW has signed a cooperation protocol with the ministry of education- Engineering Faculty of University of Cairo, the cooperation includes establishment of new specialized study in Water and Environment Engineering to qualify the new generation according to the water market needs. Scholarships were allocated to ten students who have successfully finished their junior year. This program aims to create engineers able to monitor the implementation of water projects at all levels. It builds good understanding of the available water resources and appropriate technologies while ensuring the economic, social and environmental impacts of water projects.

6.3 Market orientation

World Bank (2006); Market orientation is the degree to which actions in an institution are driven by cost effectiveness and operating efficiency. At various levels, market oriented utilities look for opportunities to lower costs through outsourcing certain functions, gradually making greater use of market forces and the introduction of market-style incentives within their organizations and they strives to establish a reputation as a financially well run business in the eyes of the financial and outside community in order to obtain financial support for growth and to maximize financial and operating autonomy.

6.3.1 Indicators of market orientation in the HCWW

- Maintaining yearly balance between expenditures and revenues. Revenues are partly drawn from subsidies or international donations which are phased out according to a planned schedule.
- Establishing billing system in all subsidiary companies to issue bills electronically.
- The existence of the organization's plans for the financial health of the institution, following up on them, cost recovery of operational costs and total costs. Five Year financial plans are developed by the HCWW and the subsidiary companies.

The following up of the first financial FYP shows good achievements (see Table 3)

The cost recovery of O&M costs has increased 17 percent for the first year after running the new model of business. Joining new water utilities from the governorate in the country to the holding company has resulted a drop in the overall cost recovery of O& M in the year 2007-2008. However, the rate has jumped again to reach 126.77 percent of operational and maintenance costs and 88.37 percent of total costs.

Table 3: The development of Cost recovery rate over four fiscal years

Fiscal year	O&M Costs	Total costs
2005-2006	80.33	75.47
2006-2007	97.56	83.12
2007-2008	86.07	61.47
2008-2009	126.77	88.37

Source: (HCWW, Financial report to the general assembly, 2009)

The structure of the tariff has no relation with cost of services and the consideration of the consumer perceptions about the services they receive and their ability and willingness to pay. As mentioned above neither HCWW nor its affiliated has the autonomy in adjusting water tariff. However, the HCWW is conducting study for tariff alternatives and their impacts on the financial statue of the company. According to the new tariff the revenues are expected to jump significantly to cover total costs in some companies and in other the operational costs. Table.4 illustrates costs, depreciation, actual revenues and the expected revenues from the proposed tariff.

Table 4: Costs and revenues (actual and proposed tariff) in the affiliated companies (Million EGP)

	M&O Costs	**Depreciation**	**Revenues from actual tariff**	**Revenues from new tariff**
Alexandria	390	420	300	600
Bahera Co	270	300	110	180
Dumyat Co	105	125	30	60
Dukahlia	350	430	100	250
Kafer Alshekh	170	200	70	170
Garbia	240	280	90	250
Alsharkiah	220	255	70	150
Fayyom	155	180	50	65
Ben Swef	90	125	50	100
Menia	125	135	50	100
Aswan	155	180	30	60
Cairo WW	520	720	300	730
Alexandria WW	230	280	80	250

Source: (HCWW, 2009)

On the other hand the HCWW is increasing cost recovery throw reducing the cost of production. Comprehensive studies of power costs have resulted in subsidiary company savings, increasing labor productivity using gradual downsizing of the affiliated companies. In supporting efforts of the monitoring system and to assure accurate data to assess the major potential cost saving activities; HCWW has taken the following measures: Four national and international companies were qualified for the purpose of producing high quality water domestic meters. A new meter testing facility is being established to test and calibrate meters. Accurate water meter will preserve the company resources and build confidence and trust between the subsidiaries and the customers. The Holding Company started the installation of 800, 000 domestic meters to replace the old and non working meters.

Great results are achieved by most of the affiliated companies and some has reached to decrease the costs by half (see figure.11).

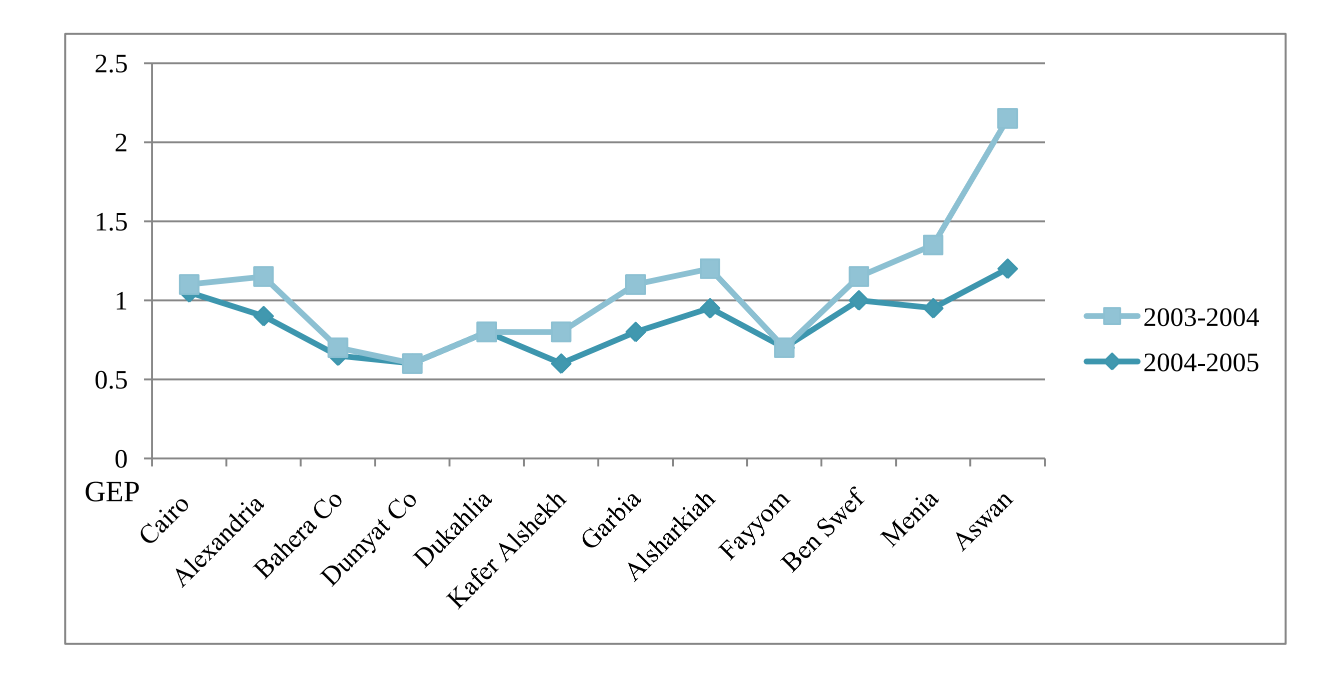


Figure 10: Production cost per CM before and after reform in the affiliated companies

- Formal and informal incentives are used with the staff to maximize cost effectiveness. This is done in the top management level as well in operational level. Develop an incentive program to motivate employees to increase the revenue and collection. The total incentives rewarded to the staff of the each company are according to its financial performance.

  The affiliated companies have creative ideas in increasing revenues; different items are added to the bills to compensate the low tariff (Seddik, 2010).

- After the reform, HCWW set the priorities of the reform of the affiliated companies, setting the financial planning basics and rules for the affiliated companies and development and modernization of financial and accounting system started in 2004 for the holding company and its affiliated companies. The work with mechanized financial system started already in 2005. The new financial model inputs: statistic for the previous years, population growth and projected water demand projection, depreciation rate, the increase in production costs, variation in the number and salaries of the staff, increase in the productivity and scenarios of new tariff. The model outputs: cash flow, the annual cash flow with the surplus and deficits financial statue expected for the next five years, analyze proposed tariff and cost recovery rate charts.

The effort in the financial development direction results an increase in the revenues and decrease the O&M costs over the last four fiscal years (see figure.12)

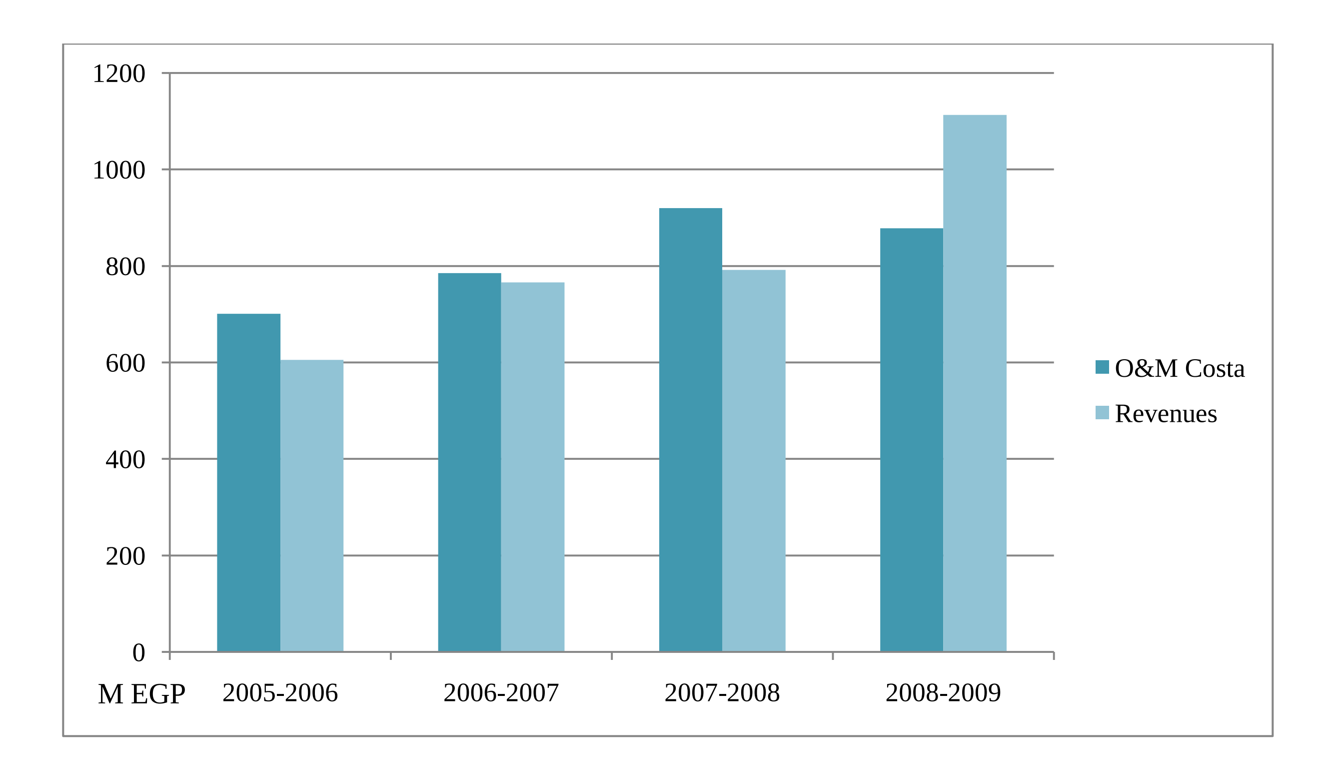


Figure 11: Revenues and costs in WS&S utilities in Egypt over four fiscal years.

Resource: (HCWW, 2009)

6.4 Accountability

As a general rule, the utility is best served when multiple stakeholders are able to offset the short-term political interests of politicians with other objectives, such as financial sustainability, good management, and service quality improvements. External stakeholders, central government, customers, donors and financial institutions, fulfill a number of important functions in the planning and operation of water utilities (WB, 2006). These include:

- Policy making, which guides the management of the utility, its service delivery objectives, and quality standards.

- Ownership, which sets performance targets and financial objectives to maximize the value and efficiency of the assets.
- Regulation or authority to monitor compliance with the legal and contractual obligations and service standards placed upon operators, determining tariff levels, and resolving conflict between regulated companies and their customers
- Financing or authority to secure financing in both debt and equity.

Each of these stakeholders implies accountability related to its functions. All these pull the utility in a specific direction based on their underlying interests, in both transparent and non-transparent ways.

In this respect the term „autonomy‟, with its meaning of self-rule, has therefore always to be considered as existing within a framework of meaningful accountability to the user groups and citizens. With practically no financial management accountability, public utilities have generally responded by placing the interests of their political masters as well as their own selected personnel above serving customers effectively, especially the poor.

Delegating authorities to lower level require accountability system. The more power are granted to the institution the stronger accountability system is needed. For example granting autonomy in setting tariff decision and allocating resources should be accompanied with equivalent accountability to an external regulatory body (International Transparency, 2008). With the absence of strong financial management accountability system, decision makers and company's owners tend to operate the utilities according to their own interests rather to respond to the customers' needs. Thus, it is very important when delegating authorities to accompany it with strong accountability system (WB, 2006).

6.4.1 Accountability in HCWW

- External accountability

In the case of HCWW a very little autonomy is delegated to its affiliated companies. Therefore the accountability system falls short to a simple monitoring and evaluation system with performance indicators.

The HCWW has established a unified monitoring system in all its affiliated companies with 65 indicators:

- Drinking water indicators: nine financial indicators, five costs indicators, fifteen commercial and administrative indicators, seven technical indicators (total 35 indicators). Examples of indicators used: the total cost of production of one cubic meter (EGP/M3), productivity of the monetary unite revenues/ costs, network productivity and the network used per cubic meter
- Wastewater indicators: eleven financial indicators, five costs indicators, seven commercial indicators and seven technical indicators (total 30 indicators)

The HCWW is accountable to its general assembly which headed by the minister of Housing and utilities and urban communities. Therefore, the HCWW is not accountable to an independent external body.

- Internal accountability

Internal accountability looks at how management and staff are held accountable for effectiveness (the degree to which the utility realizes its goals) and efficiency (the cost effectiveness of resources used to produce its water services).

Indicators highlighting internal accountability in a utility include responsiveness of the chief executive to the board, whether performance targets are well defined and provide incentives, sanctions, or both, whether staff is subject to annual performance evaluations, whether they are also subject to incentives for achieving performance targets; and whether staff is trained to perform well.

An internal audit capability is being developed within the Holding Company.

Senior management systematically reports to their boards on performance.

HCWW has well-defined business plans, which are approved by the board of directors and used to monitor progress toward targets. HCWW reports quarterly its performance to its board of directors. Yet, neither the board of directors nor the general assembly's are independent.

Incentive-based systems for top management

HCWW utilizes incentive-based system to reward good performance in the affiliated companies. The incentives are only on the positive side, if the targets are met but no penalties are applied for unmet targets.

On the other hand staff members are not subject to rewards and penalties to achieve well-defined performance targets. The incentives given to the employee are based on the estimation of its superiors which is in most of cases not objective and subject to personal interest (AbdAllah, 2010).

The annual performance reviews of staff have to be institutionalized in order to avoid short scald corruption.

6.5 Customer orientations

As described in the WB report 2006 of the characteristic of well performing water utilities; consumer orientation is organizing and directing the services of the institution towards consumers. Staff at every level in an effective institution sees serving consumers as their primary function. All work, all programs, all innovations are directed toward greater efficiency, effectiveness, and equity in service to the consumer. Effective institutions in the sector have workable means wherein consumers can interact with them. These may include emergency hotlines when there are crises, clearly identified places where disputes about bills or service can be arbitrated, ways that interested consumers can make suggestions in overall policy, and so on. Creative and cost-effective ways are sought to inform and educate the public.

6.5.1 Customer orientation practices in HCWW and its affiliated companies

- New customer service centers, customer service centers, as well as the deployment of three mobile customer service vehicles have been established in all subsidiary companies.
- Foundation of hot lines one for drinking water and other for wastewater services. Those lines are working 24 hours per day to receive complaints, response to them and to analyze the nature, positions and number of complaints.
- There are identifiable, ongoing, and effective measures to educate the staff about institutional services and requirements. Training courses are offered to costumer services staff to provide qualification in dealing with customers and complaints.

- Satisfaction surveys are conducted in different affiliated companies
- The HCWW makes efforts to invite and evoke an effective level of consumer participation through street announcements, using the water bills to inform customer about the mechanism of complaining.

However, the efforts done by the HCWW and its affiliated companies have a voluntary pattern, means the legal framework is missing to apply all measures related to customer orientation. Although customer satisfaction is a stated objective of the Holding Company in its master plan, the plan does not explain how the Holding Company intends to interact with the people it serves or respond to their concerns.

Figure .13 reveals a big variation in the customer satisfaction about the hotlines in different companies. The survey was conducted by different companies with support of UNECF.

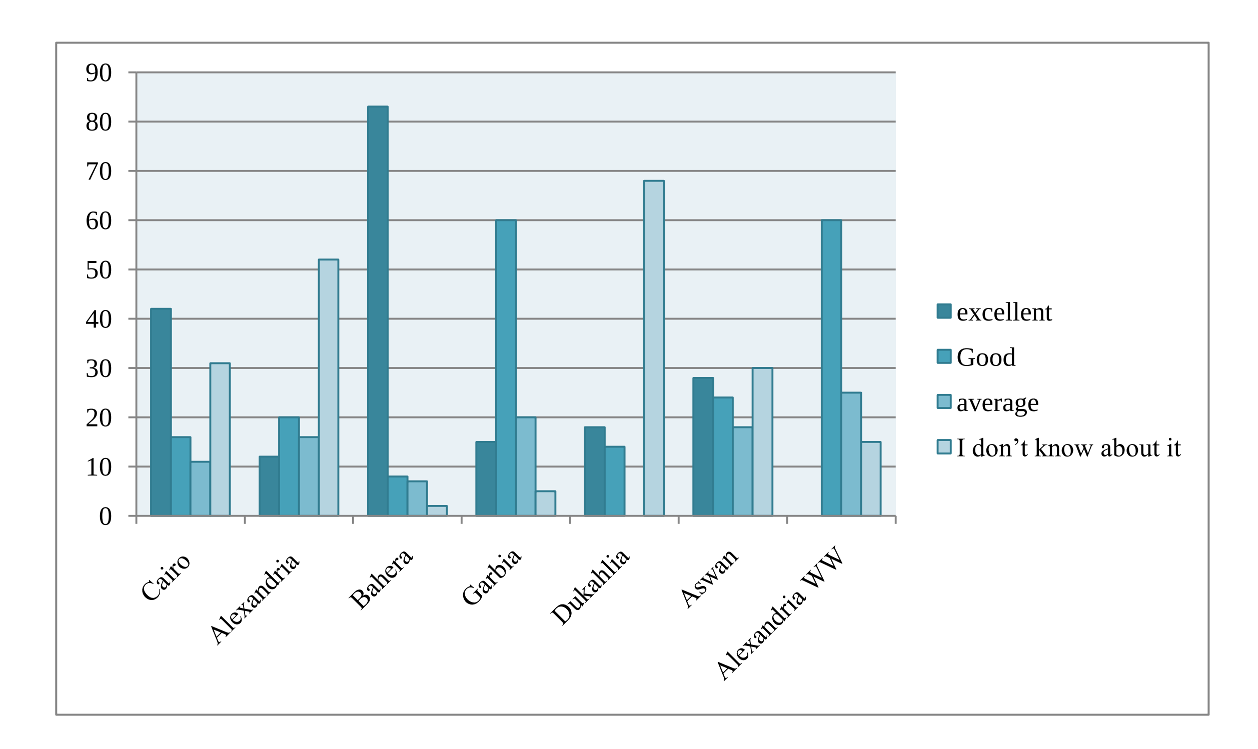


Figure 12: customer satisfaction about the hot line survey

Source: (HCWW, 2010)

The figure shows that in some area people don’t know about the hotline service at all. For example in Dukahlia 68 percent of the sample expressed ignorance about this service.

This is resulted in one hand from lack of awareness of these mechanisms, or an inability to access such mechanisms because the users do not have phones or because there is no phone reception in their area and on the other hand as mentioned above missing the legal framework to apply customer services in all companies in systematic way.

The draft water act envisions and would empower a body on potable water and sewage and customer protection to receive complaints, once a complaint has been filed directly with the service provider.

7 Discussion and lessons learnt

7.1 Is the model of HCWW in Egypt applicable for Syria?

The usefulness of establishing a holding company for water and wastewater in a given country depends upon a wide variety of cultural, economic, legal and institutional factors which cannot all be discussed in this chapter. The objective here is to identify the factors which are likely to be relevant to the Syrian context when deciding whether to set up a holding company as an alternative institutional model in water supply and sanitation utilities in the country. In order to determine the potential usefulness of HC setting in Syria the present section discusses the relevant legal, cultural and institutional factors which prohibit or promote the idea of HC establishment.

7.1.1 Economic Factors

As mentioned before, one of the most important objectives of the institutional reform in Syria is to assure the financial sustainability to the water supply and sanitation utilities.

The model of the holding company in Egypt did not achieve financial autonomy neither in investment budgets nor in operational and maintenance budgets. The HCWW still gets financial supports in form of subsidies from the government EGP 59 billion (equal to € 7.7billion) investment in the water supply and sanitation sector, annually average operational and maintenance budget to the affiliated companies of EGP 800 million and writing of an accumulated debt of EGP 13 billion) and international cooperation from international donors (more than US $ 400 million were spent during the institutional reform and total amount of international fund in ongoing projects of € 300 million and US$ 120 million).

For a discussion about the transferability of the HCWW model to the water sector in Syria the external funding of the HCWW has to be taken in consideration. This raises three concerns:

1. According to the actual figures in the international development aid to Syria it is doubtable that such technical and financial support would be available for Syrian water sector.
2. With the involvement of more than ten international development organizations in addition to the Egyptian government in such amount of fund (mentioned above) there is a crucial need to assess whether the expected outcomes of the reform worth the high transaction costs involved. This concern is raised due to the lack of international partner's coordination.
3. The governmental subsidies to the water supply and sanitation sector are used in most cases to hide the mismanagement practices. As long as the governments keep subsidy the sector, the financial efficiency is unlikely to be achieved. The impacts of supporting poor with low tariff and reducing unemployment rate (which leads to over staffed water utilities) are very often mixed with the results of bad management. There must be a clear separation between the two items; subsidy and financial deficit. Business plans, accounting system and target subsidy are useful tools to make the process more transparent. It helps as well to give clear and accurate picture at the national level on what the government spends for what item.

However, adaptation of market orientation practices in HCWW makes long-term promises to achieve financial sustainability if the external environment and the legal framework is

modified to enhance the autonomy of the HCWW in a way that it can increase its revenues and not only decrease its costs.

7.1.2 Centralization vs. decentralization

The term “holding companies” can be used to refer to at least two rather distinct types of companies. The first type of the holding companies is a local multisectoral publicly owned company which is established to own and oversee the management of several public enterprises in different sectors (water, electricity, telecommunication.etc...). For example most of the holding companies in Germany follow this model. The other type of the holding company is a national publicly owned company which is established to oversee the management of geographically distributed enterprises in one specific sector water sector for example to manage and oversee the whole sector in a given country like the case in Egypt.

The reform in Egypt was a U turn from an extremely decentralized to a fully centralized system. Both forms of administration - too much centralization or absolute local autonomy- are both harmful and it is necessary to establish a better system of collaboration between the national, regional and local centers of decision-making.

The decentralization of operational and maintenance of the WS& S sector in Egypt has failed because of the dispersion of responsibilities. The local development ministry has delegated the responsibilities of operation and maintenance of all public services to the municipalities and governorates. The latter are multi tasks holder’s organization and have no especial focus on water services. Most often, they have to prioritize other basic social services, such as education and health, over water and sanitation. As a result there was not enough attention given to the water sector.

The establishment of the HCWW in Egypt is one step ahead, but this can't be applied for the Syrian water sector. The water supply and sanitation utilities in Syria fall under the jurisdiction of the MHC which is expected to shed the responsibilities of operation and maintenance of the sector to the local authority represented by the water establishments. The FYP for water supply and wastewater proposes a number of legal and institutional reforms. It sets the direction for decentralization of water and sanitation service provision to the establishments by granting them more authorities to manage their affairs, namely human resources management, finance, procurement and accounting - not only in operational and maintenance budget - but also in investment budget as well as administrative autonomy.

The establishment of a holding company for water supply and sanitation to centralize operational and maintenance decision is not in line with the objectives of the Syrian government policies (represented in the FYP).

The establishment of a holding company for water supply and sanitation to centralize operational and maintenance decision making is not in line with the objectives of the Syrian government policies represented in the FYP.

One could argue that a different type of holding company may be better suited the WS&S utilities in Syria. The local multi-*sectoral* holding company's model described above which promotes decentralization and proven to be successful from international experience. Such reform involves very high transaction costs and political risk since other sectors would be engaged in the reform (electricity, telecommunications etc). Cost benefits analysis of this

reform goes far beyond the scope of this study and could be future directions for further researches.

7.1.3 Conflicting functions

In order to sustain market orientation in given water utility it must be protected from political interventions. In other word, there must be a clear separation between the social and commercial objectives in the sector. The institution that holds the ownership of water utilities must be independent from the one that holds policies making responsibilities. Both bodies should be balanced in terms of power. MHUUC oversees both the regulatory body and the HCWW which means that it holds both social and commercial functions. This is the same situation in Syria where MHC has the ownership of water utilities and is expected to play the role of a regulator at the same time. In order to ease tensions between the ownership and policy functions there must be a clear separation in responsibilities. There is a variety of options to distribute the responsibilities between public and private or between different public ministries or even between two private bodies (one operator and one regulator) which is unlikely to be applied in Syria. For example the line ministry which is already in charge of regulating the sector (in the case of Syria it's the MHC) and the ownership is with other ministry such as ministry of finance or the local government represented by the municipalities. All options must be analysed and compared carefully to determine the best suited to fit the economic, cultural and political context in Syria.

7.1.4 Privatization

The establishment of the holding company in Egypt was described in many occasions as transition stage towards privatization. When the Egyptian government transfers the

companies to operate under the public business company’s law this is an indicator of the intonation of privatization. The presidential decree 135 for the year 2004 proposes to regroup all drinking water and sanitation entities of the country under one single holding company. Its first mission is to seek new financial resources to sustain the operation and management budget and to relief the burden on the government with anticipating private sector participation and a possible privatization of the holding company.

As in many other countries transfer of water assets to the private sector in Syria is still not favorable at the present and the overall environment is seen as insufficiently attractive to convince private operators to assume full debt service and investment risks.

In addition in a country like Syria where the water sector has been monopolized by the government for a long time, the local private sector is almost none existing or is far below to compete with the international private sector. Here two concerns arise: The public sector lacks the needed competences to play the role of regulator. The government is unlikely to have equal skills and competences as the international private sector have. There is still fear of economic re-colonization when a few numbers of well known international private companies are on the playground. It is recommended that the government starts its capacity building in regulating hand in hand with the arrangements of PPP as well as promoting the local private sector. A combination between local and international private partners could be a good starting point to develop competent domestic private sector.

It is arguable that the state could retain the ownership of the HC and involve the private sector in operation or management contracts. However, doing it this way will create problems down the road. The government intervention will increase again and conflict

between commercial and social objectives would be unavoidable if the separation between tow functions (ownership and regulating) remains unclear.

7.1.5 Working environment

The relative success the HCWW has achieved in terms of working environment improvement is related mainly to working under business laws rather than adopting the holding company model. Public Business Company's law gives more flexibility and freedom in decision making related to human resources management, procurement, contracting and purchasing which resulted on more efficiency and productivity. Similar benefits are likely to be obtained if adopting different models such as corporatized public water company model or consumer cooperatives model. Both models involve less transaction costs and less political risks.

It is worth to mention that some management practices to improve efficiency and working environment in HCWW can be applied in water utilities in Syria with the actual institutional set up. These practices include: (1) human resources management, incentives, and capacity building and job descriptions. (2) Securing the qualification needed through the capacity building cooperation with universities and reforming and rehabilitation of the technical schools and centers belonging to MHC to be able to produce the required competencies for the water sector. However, working under worker law would not allow in any case labor retrenchment to increase productivity. A micro level reform in the external legal environment is needed to modify the current law or to allow the utilities to work under private company's law which differ from public laws. (2) A monitoring and

evaluation system including reporting schemes and performance indicators system which are unified in all affiliated companies.

7.1.6 Parallel reform in the external environment

The reform in water sector in Egypt was fundamental and has been made in one step with not much consideration of the external environment needed to make it work successfully such as the regulatory body enforcement, development of related laws and enforcement legal system. Establishment of hotlines does not help much if the legal instrument and regulatory framework are not modernized to enable the institutionalization of complaints treatment. This argument is valid in both directions; HCWW has no legal instrument to deal with nonpayment cases. For instance it is essential, to enforce the court system to comply with the commercial function of the HCWW. What is described by the HCWW as creative idea to increase revenues is not done in transparent way. Customers should know how much they pay for each item in water bill.

7.1.7 Monitoring and evaluation system

HCWW is using a well developed monitoring and evaluation system with 65 performance indicators. Missing clear definitions for the variables of the indicators leads to a huge gap between the reality and what the indicator is telling. For example; access to drinking water rate. The indicator does not define what is meant by access and what is meant be safe drinking water. Water points, networks with intermittent water supply or bad quality water are all considered access to safe drinking water. HCWW claimed that it reached 100 percent drinking water coverage while in some slums and rural areas people still get water from water points. Another fact also hidden in these indicators that who is benefiting from

what services. Indicators should be broken down to express poor and their benefits in percentage to all population. All indicators should be clearly defined in light of IWRM principles to ensure equity.

7.2 Does the model comply with IWRM principles?

Egyptian government has made efforts to reform water resource management and governance institutions. Among these reform efforts is integrated water resources management (IWRM). This section assesses how this reform works in practice and what an integrated water management system implies for institutional adaptation and change. The assessment is based on the internationally adopted principles during the International Conference on Water and Environment held in Dublin in 1992. These principles have been raised to be later the basis for much of the subsequent water sector reforms worldwide. These principles are:

- Fresh water is a finite and vulnerable resource, essential to sustain life, development and the environment (holistic approach and coordination)
- Water development and management should be based on a participatory approach, involving users, planners and policymakers at all levels (decentralization)
- Women play a central part in the provision, management and safeguarding of water (gender equity)
- Water has an economic value in all its competing uses and should be recognized as an economic good as well as a social good (financial sustainability)

The reform process which is carried out in Egypt under the heading of Integrated Water Resources Management (IWRM) is based on the Dublin four principles. The following

paragraphs discuss the specific model of HCWW in Egypt in compliance with IWRM and not the model of HC in general. Other models of holding companies could have different structures therefore different discussion directions:

7.2.1 Principle1. - Fresh water is a finite and vulnerable resource, essential to sustain life, development and the environment.

This principle is related to the national policies in water management in a wider board than one sector management such as water supply and sanitation. In another word, it is related to the external environment of HCWW and it makes no sense to assess HCWW itself in this regard. In Egypt MWRI is responsible to assure coordination and fair allocation of scared water between competing users in a participatory approach. The NWRP which was build in a participatory approach address all water related polices and considers the technical, managerial and institutional interventions. Important decisions on allocation of resources and priority setting of interventions are indicated.

A strategy that has been called ‘Facing the Challenge’ was adopted through balancing water demand management and water supply management including measures to develop additional resources, make better use of existing resources, and measures in the field of water quality and environmental protection (MWRI, 2005).

However, an appropriate institutional and legislative framework is needed to complement IWRM plans and coordinate all users and monitor the implementation of the plans.

7.2.2 Water development and management should be based on a participatory approach, involving users, planners and policymakers at all levels

Water management has a wide range of stakeholders which can be classified into different groups and levels; users, central government, local government, private sector and international community. Real participation of all stakeholders only takes place when the legal and institutional framework allows systematic participation in the decision-making process and not only in spontaneously manner.

Systematic and interactive participation has to be secured by the government through adopting proper strategies to empower and communicate with all stakeholders. Strategies include; decentralization of decision making to the lowest appropriate level, private sector participation, public information, consultation and improving transparency and public accountability.

As discussed above, the establishment of the holding company has a centralized orientation. The chance for participation is very limited in all levels in most core decision making. Investment projects are planned and implemented in the MHUUC and funded by the MOF or the national investment bank. Neither HCWW nor its affiliated companies have an influence on the tariff adjustment. Operation and maintenance are conducted by the affiliated companies in each governorate but decisions are taken by a single individual rather than commissions. Unlike what is internationally common; the structure of the general assembly and board of directors do not promote participation since the chairman

heads all board of directors in the affiliated companies and half of the members are appointed by him.

In term of public information, the customer orientation assessment shows that interactive between the companies and the public is missing. Some efforts are done in voluntary manner without systematic directions or official descriptive how the HCWW intends to interact with the people it serves or respond to their concerns.

7.2.3 Women play a central part in the provision, management and safeguarding of water (gender equity)

The human rights obligations related to the access to safe drinking water and sanitation require that they are available, accessible, affordable, acceptable and of good quality. These obligations must be guaranteed in a non-discriminatory manner, and people must have access to information to claim their rights (UN HRC, 2010).

When admitting the commercial objectives of the HCWW, there must be an equal powerful body that takes care of the social objectives. EWRA is expected to play this role. However, in practice EWRA is still not active or does not have the capacity to play its role. Concerns rise about the poor, especially in the slum areas which are still not connected to the water supply network. Therefore they are not considered as customers of one of the affiliated companies of HCWW. Officially HCWW is responsible for operating and maintenance the already existing projects and it claims its responsibility for its “customers” who are already connected. The overall responsibility of the sector performance is missing and who to blame for the poor is not clear.

There are still disparities between urban and rural access to safe drinking water and sanitation services, with the worst levels of access reported in the Matrouh and North Sinai governorates, with 73.6 per cent and 80.7 per cent, respectively which are considered one of the poorest areas in Egypt (MED EUWI M. C., 2009) .

Furthermore; the performance indicators system that HCWW is using to monitor the performance of its affiliated companies does not show which part of the society has access and which does not. Within the poorest 20 per cent of the population, only 60 per cent are connected to taps in their homes, while 98 per cent of the wealthiest part of the population is connected (see figure 4).

Women are mainly affected by the lack of sewerage and water taps in rural and informal settlement areas. There is almost no sewerage in rural and informal settlement areas. Drinking water is provided by tankers or water points. Poor people in settlement areas pay more (money and time) for lower quality of services than rich people pay for good quality. Septic tanks empting is paid by the users while connection to sewerage system is almost free of charge. They don’t dare to complain about the services they get because they feel that the government condones their existence illegally in the slum areas. The problem here is not only a matter of deficit in project implementation; it’s a problem of principle. There must be a clear definition of what an adequate sanitation service is and what access to safe drinking water is. People should have their rights to WS&S services whether they live in informal or formal settlements and services prices should be relevant to the services quality. This should be clear in a written official paper and efforts should be taken to inform people about their rights.

7.2.4 Water has an economic value

Only few countries in the MENA region consider the economic value of water. Water has a social value in most countries. The failure to recognize the economic value of water has led to wasteful use and harmed the equity and social value of water. The principle of full cost pricing does not have contradiction with the declaration of UN HRC that access to water supply and sanitation is a basic human right. On the contrary, it leads to setting priorities for water use in view of public interest and for the benefit of the poor and social value of water. The combination of water has an economic value plus a social value is about making the right choices, and not about setting the appropriate price for water. In Egypt as well in Syria water has no economic value. The consequences are unwise excessive use of water particularly from agricultural sector at the expenses of other sectors when water has to have its social value like drinking water sector. The reasons behind are related to culture and misinterpretation of religious laws. Deep understanding of this principle shows that economic value of water does not inconsistent with the principles of Islam the dominant religion in both countries Syria and Egypt. Islamic law in many occasions prioritizes using scarce resources. For example drinking water has priority one over all other uses.

Water tariff which differs from the economic value of water should be considered in this context as a tool for water demand management and cost recovery. Very often water tariff is designed to reflect the costs of services but not the charge for water itself. It seeks to cover operational and maintenance costs and in few cases capital investments. Yet, charging for water itself is debatable in practice and many consider it against culture and religion. A further study could be conducted in this regards to analyze the cultural, socio

economic impacts of applying this principle (water has an economic value) in MENA region.

Applying a charge for water to assure financial sustainability in micro level should be discussed in a higher level than HCWW.

At the macro level, the assessment of HCWW achievements proves good practice in term of market orientation. Beside the limitations on tariff sitting and the low current tariff, the indicator of market orientation in the affiliated companies gives a long term promises in assuring financial sustainability. However, those practices do not sufficiently prove that water has an economic value. HCWW and its affiliated companies get water from ministry of water resources and irrigation for free and in return it gives water to consumers for free and charges for part of the operational and maintenance costs.

8 Conclusion and Recommendations

Establishing a HC to plan and finance operating water supply and sanitation sector might be justified, but only under a set of very specific circumstances. It is important to emphasize, however, that the impact of setting up a HC will depend, in each particular case, upon the specific features of the proposed HC type and functions related to it (owning infrastructure assets; planning and financing asset replacements and network expansions; regulating the activities of the private operator; and (or) promoting acceptance of the PPP arrangement) and upon a wide variety of cultural, economic, legal and institutional factors which cannot all be discussed in this paper. The structure of the HCWW in Egypt is not applicable for water utilities in Syria. Limiting conditions of the model are:

- So far the HCWW has not achieved financial autonomy neither in investment budgets nor in operational and maintenance budgets and still gets considerable subsidies from the government and support from the international development agencies. In addition, the high transaction costs of the reform are still not justified with significant results in assuring financial sustainability.
- Centralization of operational and maintenance of the sector at national level is contradictory to the government policies. It is worth to mention that other types of HC which are practiced in other countries would be applicable in Syria. This needs further assessments which is not in the scope of this study,
- Tendency for privatization of the WS&S sector -transfer of water assets to the private sector - is not favorable in Syria. The overall environment is seen as insufficiently attractive to convince private operators to assume full debt service and investment risks.

- Conflicting responsibilities, ownership and regulation functions are both in the hands of MHUUC.

However, there are some good practices in HCWW which could be adopted without the establishment of a holding company or with slight and gradual change in the current institutional set up of the water utilities. These practices are related to working culture change. A new management culture needs to be introduced to the water establishment based on clear responsibilities, incentives for initiative and good performance, and accountability. This should be supported by appropriate human resource management and computerized information systems. The limitations which are set by the existing working culture and due to lake of skills and low of knowledge in the water sector are far below the limitation set by the legal and institutional framework. Decision makers at local level prefer to delegate the decision making up to a higher level, so that they are not responsible for bad results. First step towards the reform must be to change the working culture and to make the best use of the current legal framework. Human resources management policies should promote appropriate staff training. Areas where capacity building is urgently required include: business management, economics, law, consumer awareness. Cooperation with universities as well as revision of technical schools and centers requires urgent attention to provide the needed qualifications for operating water sector facilities.

Market orientated practices in HCWW could also be adopted for water utilities in Syria without reforming the current institutional set up. To increase efficiency, some efforts and small scale reforms need to be made, action and business plans must be driven in light of the FYP by the establishments individually each in line with its own identified potential areas for improvement.

Reform of the thirteen water establishment in Syria does not have to be unified. Different forms of utilities could be applied in different establishment. Since each governorate has its own demographic and hydrological conditions related to the population, each case must be considered apart.

There should be clear separation between the ownership and regulation responsibilities in the institutional set up to avoid set of conflicting social and commercial objectives which hampers the ability of water utilities to function efficiently. If the MHC holds the regulation function, it's preferable that other governmental bodies such as Ministry of Finance (MOF) or municipalities hold the ownership. In this way each part focuses on one function: social function (regulator) or commercial function (owner). The regulatory body responsibilities and structure should be clearly described and enforced with needed external environment, power and capacity building.

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Appendixes

Appendix (A): Questionnaire to Egyptian water stakeholders

1. Background information about the water sector in Egypt

1. What are the main players in the sector; ministerial level, executive level….
2. What are their roles and how they communicate
3. What are the main challenges in the sector
4. What were the driving forces for transition to Holding company
5. What was the transition process?

2. Holding company establishment

1. What is the legal background needed to establish a holding company
2. Board of directors (how many, from where, who appoints them, what are their responsibilities and authorities?)
3. To which extend institutional reform in the whole water sector was needed
4. What are the legal basis of the organization, ownership, and management of the Holding company?
6. What were the main challenges
7. How they have been dealt with

3. Autonomy:

8. How are organizational policies and goals set? To what extent are they set by the HCWW alone, by others, or jointly? How are they communicated with various stakeholders?

9. What studies and long-term plans have been prepared after the establishment of HCWW? Are these studies and plans adequate to meet the needs of the institution? (Give examples.) To what extent do others review and approve these studies before they can be acted upon?
10. How is annual operating and maintenance budgets prepared? To what extent are others outside the institution involved in this process?
11. To what extent do the present tariffs meet operating costs? All other costs?
12. Who must approve proposed increases in tariffs? What has been the record of obtaining tariff approvals which the institution has submitted?
13. Does the institution retain and control the revenue it collects? If not, what are the procedures for disposition of all revenues generated and collected? To what extent does the lack of control over revenues cause problems for the institution? (Give reasons/ example.)
14. To what extent is the institution able to set and maintain staffing levels? What restrictions exist? What problems arise from this situation?
15. To what extent is the institution able to employ, discharge, discipline, and promote personnel in accordance with internally set needs and policies? What restrictions exist? What problems arise from this situation?
16. To what extent is the institution able to provide salaries and benefits to its employees in accordance with its needs and policies? What restrictions exist and who imposes them? What problems arise from this situation?
17. Can the institution organize itself without undue delay and approvals from higher authorities? Who has the authority to approve reorganization?

4. External Accountability and Communication

1. Who are your key contacts outside? Who is responsible for keeping in touch with them? How often?
2. Who initiates contact? What are the objectives of these contacts?
3. To whom the HCWW has to report? How often?
4. How the HCWW oversees its affiliated companies?
5. How the budgets of the affiliated companies are monitored?
6. To what extent have your public information programs created or supported your image?
7. What is the type of public image you are trying to create?
8. How are the financial records maintained? How often are they audited? Who audits them? Are annual report audited by an external auditor?
9. How has feedback from auditors been used? How are audit information and financial records shared? With whom? How often? Is the public made aware of how the financial picture of the institution may affect them and services? How?
10. Is there a monitoring and evaluation system and performance indicators? What are the key indicators? Is there a reward or penalty systems? What are they?
11. Is the company subject to an independent regulatory office?

5. Working environment

1. Do you have clear responsibilities? Did you get the adequate training to do them? Are job descriptions available for all staff in HCWW?

2. Do you have all facilities you need to accomplish your job? How is easy to get them if they are missing?
3. What are the motivations toward producing results which move work toward meeting goals?
4. If employees attend a course outside the institution, is there any way to (or how do they) teach others what they have learned?
5. What were you able to do differently on the job as a result of the last training session you attended?
6. How is the human resource department organized?
7. How do you determine what staff needs to know in training? How do you ensure that people get training in the specific areas in which they have problems or learning needs?
8. How do staff salaries compare with opportunities outside?
9. What is the staff turnover rate is on an annual basis.
10. How is staff hired? What is the system for taking on new staff? What is the mechanism for planning manpower needs?
11. How do you feel about working here? If you had the choice would you continue working here or seek employment elsewhere?
12. How do you find out what others (your boss) think of your performance? What kind of system exists for performance feedback; does it help you do a better job?

6. Market orientation

1. What have been the organization's plans for the financial health of the institution? Have you achieved them? At what levels? Does the company cover operational and maintenance costs? Is surplus reinvested?
2. Are economic and feasibility studies required for new projects and activities?
3. What formal or informal incentives are used with the staff to maximize cost effectiveness? At what levels are these applied (top management, operating levels)?
4. What examples exist of staff innovation to achieve more cost effectiveness?
5. In what ways do individuals and groups take cost effectiveness into account when they plan and organize work?
6. How do the budget formulation and approval process work? Who is involved?
7. How is the tariff structure determined? To what extent are consumer perceptions about the services they receive and their ability and willingness to pay taken into account? Is a variable rate structure used? How? What is the relationship of the cost of services to the tariff?
8. To what extent is it organizational policy to promote the concept and inform employees and the public that the organization is run as a business enterprise? Does the staff think of the organization as a business?
9. What strategies exist to maximize productivity of resources?

7. Customer orientation

1. Who do you see as your consumers?
2. What day-to-day impact do consumers have on your work? Examples? What impact do they have on others in your office? The organization?
3. What happens if a consumer has a complaint?
4. Do you interact directly with consumers? If yes, how? Under what circumstances? What impact do they have on you? You on them?
5. What forces drive you to do good work? What specific mechanisms exist to handle consumer input into organizational direction?
6. What specific mechanisms exist for handling consumer complaints? How well do they work? Examples?
7. What kinds of public information activities occur? How effective are they? What about the press?
8. Are there any surveys about customer's satisfaction?

What is the technical and/ or financial support the Government got in the process of establishment of HCWW?

Appendix (B): Questionnaire for Syrian water sector

1. What is the current situation in the water sector in Syria?
2. What are the water supply and sanitation sector challenges?
3. What are the Syrian decision maker's expectations of the institutional reform of the water supply and sanitation utilities in the country?
4. How do you think that the Holding company model could help to overcome the challenges you are facing?
5. Would you like to downsize the water utilities through transition to holding company?
6. How could Holding Company structure solve the problem facing the sector in:
   a. Autonomy (external and internal)
   b. Accountability (external and internal)
   c. Working environment
   d. Customer orientation
   e. Market orientation
7. What is the reorganization proposal?
8. Which type of holding company are you looking for?

Appendix (C):

Directions for future research

Throughout the duration of this research, and most notably towards the completion of the study, several subjects for future investigation were identified.

1. A more in-depth look is required to understand the working environment in the water supply and sanitation sector in Syria in order to identify the potential focus areas for development. Ideally, each element of the working environment should be assessed apart and quantify the outcomes of improving each one because they are all distinct from one another.
2. Analyze the operational and maintenance costs in the water utilities in Syria and conducting a comparative analysis in order to identify the core areas for improvement.
3. Further research and assessment need to be conducted on the function of the regulatory body.
4. Regulator functions, the framework of the regulator, its rules and the potential player (who should be the regulator)
5. Assessment of the potential institutional set up alternatives for MENA region and identifying the pros and cons of each alternative in the context of countries specifications.
6. Assessment of other types of holding companies in water sector in different countries (example; Holding companies established in the former East Germany). Cost benefit analyze should be made to ensure that the transaction costs and political risks of the reform are justified.

7. Assessment of the socio economic impact of water sector privatization in Egypt
8. Assessment of the cultural, socio economic impacts of considering the economic value of water according to Dublin principles in MENA region.
9. Assessment of the transaction cost of the institutional reform in water sector and the political and social risk involved in the process of the reform and conducting a cost benefit analysis for pre identified case studies.

Appendix (E): Declaration

I, Hala Alhamed, declare hereby on oath that this Master Thesis in hand has been made independently and without the help of any other than acknowledged.

The thoughts taken directly or indirectly from external sources are made recognizable as such. This thesis was not presented to any other examination authority either in the same or similar form and till now it has not been published.

Cologne, Signature

I do further agree to a later publication of this Master Thesis, may it be in parts or entirely within the ITT publications or within the scope of the ITT‟s public relations.

Signature

إعادة هيكلة مرافق مياه الشرب و الصرف الصحي في سوريا
الدروس المستفادة من نموذج الشركة القابضة لمياه الشرب و الصرف الصحي في مصر

إعداد

هالة محمد الحامض

المشرف

الأستاذة الدكتورة منار فياض

المشرف المشارك

الأستاذ الدكتور هارتموت غيزة

الملخص

أجريت هذه الدراسة بهدف تبادل المعرفة واستخلاص الدروس المستفادة من تجربة الإصلاح المؤسساتي في مصر للاستفادة منها في قطاع مياه الشرب و الصرف الصحي في سوريا. تستعرض الأطروحة دراسة حالة الشركة القابضة لمياه الشرب و الصرف الصحي في مصر مع وصف مقتضب للبيئة المؤسساتية الخارجية المحيطة بها. و تناقش إمكانية تطبيق نموذج الشركة القابضة في قطاع مياه الشرب و الصرف الصحي في سوريا. بالإضافة إلى ذلك فان الدراسة تقييم مدى مواءمة التجربة المصرية مع مبادئ الإدارة المتكاملة للموارد المائية.

يركز التقييم على المعايير الأساسية الخمسة لمرافق المياه ذات الأداء الجيد. هذه المعايير هي: الحكم الذاتي؛ بيئة العمل، والمساءلة عن النتائج؛ التوجه نحو العملاء و التوجه نحو السوق.

لقد أدت قضايا الحوكمة و ضعف الهيكل المؤسساتي في قطاع المياه في كلا البلدين سوريا و مصر إلى نشوء تحديات مالية و تنظيمية و فنية في قطاع مياه الشرب و الصرف الصحي لها تأثيرات بيئية و اجتماعية و صحية مباشرة. مع اختلاف طفيف بين البلدين و هو أن مشكلة ضعف التنسيق هي أشد في مصر مما كانت عليه في سوريا.
الاستنتاجات الرئيسية هي: أن هذا النموذج من الشركة القابضة في مصر غير قابل للتطبيق في سوريا. المعيقات التي تحد من تطبيق النموذج تتعلق بنزعة المركزية. بالإضافة إلى أن عملية الإصلاح في مصر تنطوي على تكاليف المعاملات المرتفعة (أكثر من 400 مليون دولار أمريكي و

أكثر من 500 دولار أميركي في مشاريع جارية بتمويل تعاون دولي)، من ناحية إن هذه المصادر المالية من غير المرجح أن تكون متوافرة لقطاع المياه في سوريا و من ناحية أخرى فان هذه التكاليف لا تزال غير مبررة بنتائج ملموسة على صعيد تحقيق الاستدامة المالية للمؤسسة. ولكن هناك بعض الممارسات الجيدة في الشركة القابضة و التي يمكن اعتمادها دون إنشاء شركة قابضة في سوريا. وترتبط هذه الممارسة بتغيير ثقافة العمل، و ممارسات التوجه نحو السوق.